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## Original Articles

# HEPATIC INSUFFICIENCY IN OBSTETRIC PRACTICE.*

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Notwithstanding the indifference of some and the angonism of others, there is no doubt that a belief in e existence of a special autointoxication of pregnancy rapidly gaining ground among obstetricians, patholoists and others whose attention is being especially diected to this subject. The more one studies this subect the more one is inclined to believe in the existence f such a condition, and already many obscure points n obstetrics are being made clear by this doctrine.

Although the literature is already very large—for it lates far back beyond the adoption of the term "toxmia of pregnancy"—the subject is still in its infancy. nd many phases are as yet untouched.[1]

We all know that in prescientific days puerperal morbidity and mortality were fearfully common, and were largely ascribed to some specific cause, whether contagious or not. In other words, the various phases of puerperal morbidity, while differing much from one another. were thought to possess something in common. Then came the study of bacteriology, the introduction of asepsis, and the wiping out of the worst types of puerperal disease. It eventually became almost a reproach to have a patient or a hospital service in which sepsis was a factor; and, as a result, we find the accounts of puerperal morbidity in our text-books of the last decade extremely meager, and founded oftentimes rather on traditional accounts than on a study of many contemporaneous cases. Plenty of sepsis still occurs, but it is scattered. Much originates in the practice of midwives, criminal abortionists and irresponsible practitioners and among unattended women; a certain amount occurs in maternities, despite all precautions; finally—and this point is of the greatest importance—many women die of sepsis which complicates other and severe forms of disease; and the cause of death is attributed to eclampsia, placenta previa or what not, rather than to sepsis.

In spite of the great reduction in mortality, it is generally admitted that there is a great deal of puerperal morbidity. The rationale of many cases is often extremely obscure, and the etiology given for particular cases may be far fetched. So great has been the faith in the efficacy of asepsis when properly carried out to prevent morbidity, that the latter has been ascribed largely to faulty technic. The recent demonstrations that potentially virulent germs are to be found in a majority of puerperal uteri has once more thrown the burden of causation back on predisposition.

### PATHOLOGY OF GESTATION.

Gestation has generally been regarded as a physiologic process under all ordinary circumstances. The special pathology of gestation in reference to the puerperium has always been made up of a few conditions only. Leaving out of consideration certain maladies of genital origin (placental anomalies, etc.), it is confined to a single affection, to-wit, eclampsia, or rather the pre-eclamptic state. The woman with gestatory eclampsia is known to be strongly predisposed to sepsis, while in a woman who goes to term in the pre-eclamptic state we have to fear both postpartum eclampsia and the possibility of sepsis.

The influence of the accidents of labor on puerperal morbidity is, of course, well understood. The general breakdown of health which many women experience in the postpuerperal period of lactation, and which often seems to pave the way for actual diseased states, has generally been referred to the shock of labor, to the drain of lactation, or to the rousing to action of inborn tendencies, and never *per se* to any specific influence of gestation.

That sepsis could be due in any way to a specific autotoxic state (save perhaps in the case of eclampsia) has never been suggested until recent years.

This autotoxic state of pregnancy corresponds to functional incapacity or insufficiency of the liver; a condition sufficiently well known to require no special description here. We have only to bear in mind that the healthy liver renders the products of digestion and absorption suitable for assimilation, while it also disintoxicates both the products of intestinal putrefaction and the waste substances which result from katabolic activity. The results of hepatic insufficiency are largely synonymous with the symptoms of the autotoxic state.

So strong is the tendency at the present time toward unicism in respect to gestatory morbidity, as based on the existence of a basic autotoxic state, that a few obstetricians—and I confess that I take my stand in this minority—are inclined to regard all the severe and quasi-specific affections of pregnancy, such as hyperemesis, acute atrophy of the liver, eclampsia, polyneuritis, impetigo herpetiformis, and perhaps gestatory psychoses, as of common origin and closely related. Moreover, it is the conviction of this minority that very much of the minor morbidity—the gastric disorders, headache, alterations of character, pruritus, chloasma, ptyalism, etc.—can be referred to the same source.

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* An address delivered before the Alumni Association of the Long Island College Hospital.

[1] The entire study of the autotoxic state is much too extensive for review in the present paper. Those who care for a systematic and detailed account, I refer to the second edition of my "Practice of Obstetrics," in which the views of Prof. James Ewing are to be found, and also to Dr. W. S. Stone's paper in "American Gynecology."

had the opportunity in the last six months of ing the findings in as many autopsies on women have died, during gestation, of the toxemia of pregnancy, as indicated by hepatic necrosis. Before death, the diagnosis in these cases was excessive vomiting of pregnancy, hysteria, etc. The teaching of the future will probably be that the autotoxic state of pregnancy exerts a notable influence on the genesis of sepsis. This is known to be true of the pre-eclamptic state, which is the nucleus of the modern doctrine of the special toxemia of gestation. It is also apparent that any toxic state *per se* furnishes a predisposition to sepsis. Thus, according to Vinay, when pregnant women are attacked by any of the acute infectious diseases which may terminate pregnancy, and the disease pursues its course during the puerperium, death often occurs from the complication of sepsis, even although the original malady was sufficient to produce death. Again, women often abort without any apparent reason, the abortion becoming septic.

It now appears very probable that puerperal polyneuritis, postpartum eclampsia, sudden death in the puerperium, puerperal psychoses, and, to a certain extent, much of puerperal sepsis are due to a common toxic state, being all referable to gestatory toxemia which persists into the puerperium. In other words, all of the so-called puerperal morbidity, aside from hemorrhage and its effects, shock, birth traumatism and chance infection of any sort and from any source, stand in a close relation of kinship.

In like manner, those obscure conditions which arise in the postpuerperal period are set down by some authorities to injuries of the viscera received during gestation from the toxemia peculiar to that period. Thus, hepatic insufficiency may persist for months after delivery, the woman exhibiting the various stigmata of that condition. Permanent injury of the kidneys sometimes—although rarely—results from the kidney of pregnancy, the patient becoming a nephritic. Focal lesions of the spleen are believed to be responsible for part of the anemia and of the leukemia which follow maternity.

## THE RESPONSIBILITY OF THE OBSTETRICIAN FROM THE STANDPOINT OF THIS NEW DOCTRINE.

In order to limit the length of a subject which may not carry with it the same intense interest to the general practitioner that it does to the obstetrician, I shall summarize what I believe to be the present status of the autotoxemia of pregnancy from the clinical standpoint.

If these statements can be proved, and they are sufficiently so to me, then the obstetrician of the future, yes, and of the present, has a new responsibility laid upon his already overburdened shoulders:

### PREDISPOSITION.

First. Certain women show sufficient evidence of a predisposition to hepatic insufficiency as to render the occurrence of grave symptoms of toxemia, at the onset of pregnancy, a foregone conclusion.

Many of our patients evidently suffer from hepatic insufficiency. I see it almost daily in my practice. Possibly there is a family history of biliousness, and this will often show itself in the character of the pregnancies of the patient's immediate female relatives.

The teaching of Charcot was that hepatic insufficiency is pre-eminently an hereditary state.

A clear family history of this condition is often absent in a given patient, and yet her immediate family may suffer unduly during pregnancy or during puerperium.

These patients have "bilious crises" in the non-p nant state, and often suffer from temporary amenorr and at such times well-marked symptoms of mild a intoxication are present, as headaches, nausea, pros tion, insomnia, pruritus, cutaneous eruptions, un pected and sudden changes in tastes and disposition slight jaundice.

If an examination of the intestinal functions sh any tendency to coprostasis, acholous feces, undiges fats, etc., it would naturally suggest hepatic insu ciency.

Urinary analysis furnishes perhaps our most valua aid in determining the state of the functions of liver, and shows the presence or absence of the so-call functional albuminuria, of glycosuria, of diminish amount of urea, of excess of purin bodies, of indic etc. In this connection some of the hepatic functio may be tested dietetically.

The mental state, senses and reflexes should certair be tested in suitable cases. It has often been claim that the cerebral cortex, and, to a certain extent, t nervous centers in general, very readily participate hepatic insufficiency. This is seen in a small way in t irritability and moodiness of the bilious individual, a exalted reflex excitability is doubtless of the same cha acter. Of special importance is the relationship of t toxemia of pregnancy to hysteria, as seen in connecti with hyperemesis. It is well, therefore, to examine t woman for the stigmata of this latter condition, whi if present would certainly be aggravated by the toxem of pregnancy.

If, after such an examination, we find marked ev dences of hepatic insufficiency, which are believed constitute a predisposition to the toxemia of pregnanc are we justified in forbidding conception? This largely a question for the future to decide. If all els is favorable, my present opinion is that it would b best to let conception occur, gestation being closel watched. We must remember that the mortality fro the toxemia of pregnancy includes much—perhaps a —of that of pernicious vomiting, that of eclampsia, an perhaps a good deal of that of sepsis, together with th rarer conditions of death from fulminant toxemia, an some of the mysterious deaths which occur after th puerperium. To this array of fatalities must be adde a very large immediate and remote morbidity. Hence if the connection between insufficiency of the liver an the toxemia of pregnancy holds good in all countrie and among all races, it is evident that the risk whic such a woman runs by conception is very considerable, although the numerical chances are perhaps in he favor.

### TREATMENT.

Second. If symptoms of toxemia show themselves in pregnancy, what shall be our attitude in the case?

It is well known that the mild evidences of toxemia as seen early in pregnancy generally subside before the fifth month, giving the impression that its condition is self-limited. During this period, however, the toxemia may result in acute hepatitis, in fatal pernicious vomiting, etc. An apparent subsidence of toxic symptoms should not throw us off our guard as to prognosis, because such a patient has been known to develop postpartum eclampsia. Under any and all circumstances during gestation it is well to submit the woman to certain tests.

Any one can readily understand that the toxemia of pregnancy undergoes distinct exacerbations at the date of the menses, and the suspected patient should be carefully watched at this period. The urine should be tested, not only for the milder evidences of hepatic insufficiency but for the presence of leucin and amino-acids in general. The liver should be carefully examined for enlargement and for tenderness. The mental and nervous states should be investigated; then, if we examine the woman later, we can form some idea of the advance or recession of the disease.

At these times one will often observe languor in the patient, sometimes approaching stupor, general malaise, headache, constipation, itching of the skin, slight jaundice, nausea and vomiting, insomnia or somnolence, and alterations in character and disposition, with slight lapses of memory.

For the diagnosis of the milder forms of this condition, the presence of leucin and tyrosin and amino-acids in the urine is not essential.

Bearing in mind the claim of Richard C. Norris of Philadelphia, that the toxemia of pregnancy may be latent as to general symptoms, but may cause degenerative changes in the heart which cause death during labor, it is certainly well to pay some attention to that organ.

If the toxemia should attack the heart we should expect to find some acute dilatation, which in turn would doubtless set up passive congestion of the liver. A vicious circle would then involve the two organs, the mischief going on in one would aggravate the state of the other. The origin of the varicose veins of pregnancy, when not due directly to pressure, has always been obscure; it has been set down to pregnancy itself, or, as we would now say, to the toxemia of pregnancy. The presence of varicose veins early in gestation, when mechanical causes can be excluded, may possibly be of some value as an index of a cardiovascular toxemia.

It is well to watch for the normal enlargement of the thyroid during pregnancy, for, according to recent writings, when this does not take place, toxemia is prone to develop.

Evidences of progressive toxemia doubtless justify the interruption of pregnancy. They can only mean that the liver is undergoing structural disease, and that the chances, on the whole, are against the patient. If palpation reveals the presence of an enlarged and tender liver, if leucin is present in the urine, if the stomach and nervous system show considerable participation in the general derangement, we should empty the uterus at once; otherwise the patient will doubtless develop, sooner or later, one or more of the severe or terminal manifestations of the autotoxic state. It is not alone in the emptying of the uterus, however, that the treatment rests. During the past year I have known of four cases in which death resulted in spite of this procedure.

In the past year I have seen surprisingly good results, in my own practice and in the practices of others, from the administration of calomel, repeated colonic irrigation, venous saline infusion, and the general stimulation of the emunctories, but without interrupting the pregnancy.

If the case passes into one of ordinary hyperemesis, eclampsia, etc., the indications, prognosis, etc., are sufficiently well known and need not be discussed here.

### PROGNOSIS IN FULL TERM CASES.

Third. What is the prognosis of cases of persistent pregnancy toxemia that we allow to proceed to full term?

There are a number of conditions under bed, shive toxemic pregnancy may go on in safety to the per. thougl delivery. The symptoms may have subsided spontapair ously, or may have yielded to treatment; threatened eclampsia may have been averted by diet. Evidences of toxemia may have been slight or may have exhibited a diminishing tendency. The patient may not have been seen or the condition may have been unsuspected until term, or at least until the fetus was perfectly viable. Under such circumstances the obstetrician must bear in mind, first, that there is a possibility of death during or directly after labor, as a direct result of cardiac paralysis due to the autotoxic state. If there is any evidence which points to such a state of the cardiac muscle, the indication would be to hasten delivery. Our knowledge of sudden death in the puerperium hitherto has been cognizant only of such accidents as pulmonary embolism, air embolism, cardiac thrombosis, cerebral apoplexy and cardiac failure from antecedent organic disease, but doubtless will be revised from the viewpoint of the cardio-toxemia of pregnancy. Next to sudden death, the possibility of postpartum eclampsia must be borne in mind. If the trace of albumin which is said to persist in the great majority of puerpera for the first week after delivery shows increase, i. e., if postpartum albuminuria is in evidence to an unusual degree, there is reason to fear this accident—particularly in those cases which have shown the pre-eclamptic state during gestation.

Of even more interest is the subject of puerperal sepsis when viewed as a possible sequel or continuation of the toxemia of pregnancy. The nucleus of this doctrine is the proneness of the eclamptic woman to develop sepsis after delivery—the ratio being greater than may be accounted for by the need of operative intervention, etc., in such cases. Over and beyond this, however, we may almost generalize to the effect that in any toxemic state whatever during pregnancy the chances for a septic puerperium are much increased. This may be seen in connection with associated infection before delivery with typhoid and similar acute diseases, syphilis, cancer, etc. Antepartum infection with the ordinary germs of puerperal fever pursues a notably serious course after delivery.

It seems reasonable, then, to conclude that a toxemia peculiar to pregnancy is bound to end after delivery in an abnormal puerperium.

### PROPHYLAXIS.

Fourth. If a woman has once gone through a toxemic pregnancy, how shall she be advised?

If the toxemia was severe in character—hyperemesis, eclampsia, etc.—subsequent conception should be discouraged, or at least left to the decision of the patient. In mild toxemia, the conditions are different. Generally speaking, conception may be permitted or advised, the pregnancy being carefully supervised. However, even in the milder forms of toxemia, too rapid child-bearing should be discouraged; my belief is that the slight toxemia which attends most pregnancies becomes cumulative if the woman be not given time to recover completely from the effects of the preceding gestation.

From another point of view, if a woman shows marked evidence of autotoxemia after a given pregnancy—irrespective of the character of the gestation—she should not conceive so long as such symptoms persist. Such a woman probably has residual lesions of some of the important viscera, and a fresh conception might precipitate toxemia of the worst type.

### CONCLUSIONS.

The preventive treatment of much of the morbidity and mortality of pregnancy and of the puerperium depends on the early recognition of the autotoxemia of pregnancy, as it shows itself in the clinical picture of hepatic insufficiency.

2. No one who has had an extensive obstetric experience can fail to observe that a large number of pregnancies are really pathologic in their nature.

That a specific toxemia of pregnancy exists will probably soon be admitted on all sides. It is, of course, very easy to attribute to the autotoxic state certain symptoms the pregnant woman which proceed from other sources; and it is by no means impossible that pregnancy may predispose to more than one toxic condition. In any case, however, the presence of the hepatic toxemia *must be borne in mind*—whether it be the principal state or accessory to other facts.

3. Our present knowledge of the pregnant state demands that women at this time should be constantly under the observation of a competent physician. Pregnancy can not be treated through the mails or over the telephone.

It is not enough that a monthly or bi-monthly examination of the urine be made for symptoms of hepatic or of renal insufficiency, as such urinary analysis often fails completely to indicate the presence of toxemia.

A pregnant woman should be seen frequently by her physician and watched for general symptoms of the overcharging of the blood with toxic material, such as nausea and vomiting, headache, physical and mental lassitude, high arterial tension, alterations in character and disposition.

Thus, and thus only, shall the physician do his whole duty by his patient.

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# OCEAN BATHING.

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In considering some of the advantages and disadvantages of sea bathing, one must not lose sight of the fact that it is impossible to separate them from the influences of other agencies, such as temperature and the physical conditions of the atmosphere. And, again, it is no less true that the physical and mental condition of the individual at the time of the bath may greatly modify or influence the effect. Sea water being composed of minerals such as chlorid of sodium, magnesium, bromin and iodin, is truly a mineral water, and an ocean bath, therefore, may be properly classified as a mineral bath. Since temperature is one of the agencies to be considered, we must not regard its presence or absence, beyond a relative degree, other than a definite quantity of either the water or the body. In nature's operations, heat and cold are as necessary as they are wonderful, whether contemplated from their effect on the human body, on animal life in general, or on inanimate matter. In the human body, heat and cold have only a relative action, and much depends on the particular state and condition of the body at the time, and the end to be subserved. They may be alike, first, salutary, and second, pernicious. I have observed those who for different reasons have been obliged to remain for hours submerged in the sea, and have noted both the slowing and the enfeeblement of the pulse, the lowering of the temperature, and the evidence of general debility as exhibited by the loss to the various forces. I have also observed with equal interest those immersed for a time in warm water at a temperature higher than that of the body. Here the first influence was that of the speeding of the blood current, the stimulation and invigoration of the motor centers, the increasing of the cellular and glandular activities, and, as the exposure was prolonged, secondarily, the depressing influences became so marked as to completely derange the equanimity between the capillary and larger circulations, limiting nerve force, and thereby lowering the systemic resistance to a greater or less degree. In the former, i. e., exposure to cold sea water, I have noticed the temperature lowered from 1 to 2 degrees, and at the same time the lessening of the pulse rate from 15 to 20 beats.

Dr. Gibbony, *an English authority, states that in his* observation "of flounder fishermen off the coast of Northern Ireland, and of the shrimp fishermen off the coast of Brighton, England, where their vocation compels them to be exposed in the water for many hours," the temperature of these waters being at least 10 degrees lower than that of the Atlantic ocean along our coast, he has noted the pulse as many as 30 beats less than normal, and the temperature reduced 2.5 degrees.

Hippocrates once advanced the theory "that subsequent heat, succeeding to the cold applied, was always proportionate to the intensity of the latter." While this may be to some extent concurred in, it is subject, both in health and in disease, to special modifications, which modifications arise more particularly from the length of time of the exposure and the conditions under which the exposure is made. Therefore, when considering the special benefits or the special diseases and conditions to be benefited, there are other agencies or influences which must be taken into account, such as, for instance, those relative to the sea, namely, the forcible activity or movement of the water, the physical conditions of the strand, the distance and convenience of the dressing rooms, etc., and those relating to the individual, namely, the resisting power of the body, the time of the bath, length of time of exposure, the temperament, the physical debility present—i. e., whether the body is relaxed, enervated, nervous, or highly tensioned; and also whether the result to be obtained should be bracing, tonic, stimulating and invigorating. In other words, the individual bather must be considered a complexity of forces or an aggregation of systems capable of independent as well as allied actions.

Beginning with a simple cell, with its inherent power, we can easily follow the force suggested until it expands into the various systems—the nervous, the vascular, the glandular and the muscular—each of which is easily influenced individually and collectively, incidentally and relatively, internally and externally.

But time does not permit of further elaboration or discussion of this phase of the subject, the important and principal phase being the behavior of these forces when met by the conditions, under varied circumstances, of the question as above stated.

It may not be out of place, for the sake of illustration, to consider the human body as a type of a perfect machine, constructed in a beautiful and wonderful manner, with its functions so intimately poised, so accurately organized, and so connected that none could be more perfect. Any deviation from this type is represented by disease, either functional or organic, and the severity of the derangement merely the degree.

Assuming this to be our perfect machine, our type necessarily will be a youth representing vigor and perfect development. In the immersion of such an individual in sea water at a temperature of from 65 to 70 degrees, we would naturally find a quick response to the sudden stimulation of cold, that is, of the water, which meets the surface of the body as the plunge is taken. The stimulus to the peripheral sensory nervous system is such that it quickly contracts the adjacent capillaries and sends the blood speeding to the larger vessels and internal organs. The systemic vigor and reserve forces return it again to the surface of the body, accompanied by the resiliency and invigoration which emphasize the pleasurable sensations so gratifying to the bather.

If, after dressing from such a bath, a genial glow suffuses itself over the sensitive surface of the body and is succeeded by a pleasing warmth internally, accompanied by a refreshed and invigorated feeling, it is evidence and proof of the salutary influences; but if instead there follow a chilliness, languor, headache, irresistible depression and disposition to drowsiness, or any of these, it should be reckoned as important evidence that the bath has not contributed in any material way to the advantage or improvement of the person's health, and that, if persisted in under similar or like conditions, the result will in time prove injurious. So much depends on the vital power or reactionary influences which we may call the *callidum innatum,* which is constantly renewed by a most admirable combination of chemical agencies and animal functions, that, after considering the preliminary conditions previously stated, it becomes equally important for us to observe our patients and to impress on them the necessity of looking for the special reaction above stated, and when it is absent to desist further indulgence in so questionable a pleasure.

With these generalities and references, I now come to speak more specifically of the use of the bath and the special conditions and diseases for which it may be used. In the first place, I venture to make the statement that the sea or ocean bathing as practiced at Atlantic seacoast resorts is responsible for greater harm than good. Few people seem to attach much importance to the danger of either the prolonged exposure in the water or to the prolonged exposure in their wet garments in the cool atmosphere on the sand. While this seems a matter of easy remedy, particularly if a little good judgment and common sense be exercised, nevertheless the surprise is that the practice increases rather than diminishes. It may be said in advocacy of such a practice that the majority of bathers bathe for pleasure, with a blind disregard for either its advantages or disadvantages, and indulge themselves for such periods of time as either their own or their friends' convenience permit.

Admitting the truth of this claim, there does not yet seem to be any good reason why the seeking of pleasure should be an apology for the violation of the laws of health: and too often the physical condition present, which may be giving them great concern, adds little alarm to the occasion.

Many of us have stood on the strand and observed not a few but many young, middle-aged and old alike returning from the surf, or from a prolonged exposure in their wet clothing on the sand, to their dressing rooms, slightly and even markedly cyanosed, with pale and shriveled cutaneous surfaces, capillaries contracted, cutaneous functions temporarily paralyzed, internal organs and deeper-vascular system greatly engorged, and in some instances seriously disturbed, shivering chattering as they pass, giving little thought to the threatening dangers incidental to the impaired forces and debility occasioned by the exposure.

In view of these observations it would seem that our voices have already been too long silent and our pens too inactive on the subject so universally abused. Each physician should counsel those over whom he has advisory charge, of the dangers incident to a prolonged exposure in the ocean or on the sand in wet clothing, and also to the too frequent daily indulgence of either. It is his duty to impress on them the advantages of a short exposure or immersion, say ten, fifteen or twenty minutes, and never exceeding thirty minutes; the necessity of prompt and positive reaction after the bath; the maintaining of a good physical condition, and giving to them, according to their particular need, such specific instruction as will best avert harmful or serious disturbances. When the normal body temperature is exposed to that of an active body of water, or currents of air 10, 20, 30 or 40 degrees lower than itself, the tendency is to the equalization of the temperature of the bodies in contact, and the greater the motion of these bodies the more rapid the transfer, and the more rapid the receipt and loss to the bodies involved; hence, prolonged contact largely reduces the former, while it adds but little to the latter. The body during this large dissipation of heat becomes so enfeebled that its economic forces are temporarily inhibited, and in some instances seriously deranged. While such general disturbances may be frequently observed in the healthy and normally robust, it much more frequently occurs in those of less resistance, therefore the necessity for greater precaution in giving advice, and making recommendations to those whose health has already suffered impairment.

The practice of promenading on the beach in the scant and poorly protecting garments so fashionable of recent years—I pause to emphasize the word "fashionable"—after an immersion from, say, three-quarters to an hour in the surf, is unmistakably harmful and equally inexcusable, and should have the denunciation of every physician as well as others engaged in the upbuilding and maintenance of good health; and there is little less to be said in favor of the practice of lying on the sand and frequently returning to the water, which practice so changes the temperature of the body as to invite lowering of resistance, and thus rapidly insures progressive debility.

An important feature in sea bathing which must not be lost sight of is the active motion of the water—i. e., the impact of the swells or waves; to this may be added the thermic stimulation of the cold, the chemical irritation of the salt, and the mechanical influence of the forced activity, thus giving a marked nerve stimulation and an energetic primary vascular contraction and subsequent reaction. Hence, when summarily considered, we must recognize that a tremendous impetus is given the fluids of the body, an incidental active alteration in the various forces, also a modification direct and indirect to the reflex activities. The cold sea bath combines the stimulating influences of the brine bath at a low temperature with the effect of a stimulating hydrotherapeutic procedure. They are admirable for rapid reaction and prompt functional stimulation, and are indicated in those weakened conditions where normal metabolism is inhibited, or where perverted nutrition exist. Such conditions are present usually in all functional disturbances of long standing, types of wh neurotic dyspepsias, the functional anemias and neuralgias, neurasthenia, and some cutaneous diseases, as eczema in the subacute and chronic forms, pityriasis, urticaria, etc.

Sea bathing is contraindicated in those cases in which the arterial elasticity for any reason has been changed or lost, as in arteriosclerosis and capillary fibroses; also where the peripheral vessels have ceased to respond to reflex stimuli, or in any case or condition in which the stimulation of the bath would be likely to favor or to produce internal hemorrhage (particularly in the aged, in whom we have realized or suspected fragile arteries), and for those with organic heart disease, recent rheumatism, cholelithiasis, acute gastrointestinal or febrile diseases, or any disease whatsoever in which the normal resistance has been so reduced as to make it necessary to protect and guard the patient's forces.

Miscarriage may be caused by bathing when the sea is particularly rough. Sea bathing is also prejudicial to health during the menstrual period. It is worthy of note that otitis media frequently follows bathing in a rough sea, as well as frequent and prolonged exposure in the water.

# HOW MAY TYPHOID FEVER BE ELIMINATED? *

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The eradication of a given infectious disease requires an intimate knowledge of first, the causation or underlying etiologic factors, and second, the best methods of preventing these factors from operating.

While very desirable, it is not absolutely necessary for purposes of prevention to know the specific cause of the infectious disease to be combated; it is sufficient to know the ways and means by which the specific cause, whatever it be, becomes operative. Thus smallpox may be prevented without the specific cause being known, and the prevention of yellow fever is an accomplished fact, although the specific cause still remains hidden from the searching eye of the bacteriologist. These general considerations prepare us for the statement that although the specific cause of typhoid fever—the bacillus of Eberth and Gaffky—has seldom, if ever, been found in polluted water; such water, nevertheless, has been the cause of typhoid epidemics, and the prevention of such epidemics can be accomplished by removing the source of infection. The failure to discover the typhoid bacillus in water which had given rise to typhoid infection is, from a strictly bacteriologic standpoint, tantamount to failure to establish the presence of such specific cause, and were we to rely on bacteriologic evidence alone, typhoid fever could not be considered a "water-borne" disease.

From a strictly scientific point of view, a mere inference should not be accorded the value of an established fact, and, therefore, a mere supposition that typhoid bacilli may be present in sewage-polluted water does not or should not mean that the presence of these bacteria has been actually demonstrated. However polluted a water supply may be, it may, nevertheless, be free from typhoid bacilli, and, on the other hand, typhoid bacilli may be present in water which, on examination, does not reveal the presence of sewage pollution.

Bacteriology with its modern technic traces the typhoid bacillus from the time it enters the human body until it leaves the latter with the feces or urine, but utterly fails to enlighten us on the life-history of this micro-organism outside the body. The behavior of this bacillus in large bodies of water under natural conditions is a blank to be filled in by further investigations, but a blank, nevertheless, which at present constitutes the missing link in the chain of evidence that polluted water causes typhoid fever.

Fortunately, however, the evidence furnished by epidemiology is all sufficient to satisfy the most skeptical. We know that polluted water gives rise to epidemics of typhoid fever because: 1, Epidemics have been traced to the contamination of the drinking water with the fecal discharges of a single typhoid patient, as in the classical outbreak at Plymouth, Pa., in 1885, following the pollution of the stream with typhoid feces; 2, typhoid morbidity bears a direct relation to the character of the water supply; and 3, *high typhoid morbidity* in communities supplied with sewage-laden water diminishes on the introduction of a pure water-supply or the effectual purification of the old. These facts have been verified by years of observations by competent sanitarians.

### STATISTICS OF TYPHOID.

It is interesting to note that as early as 1843, when the etiology of typhoid fever was obscure, the late Austin Flint traced an outbreak of typhoid fever in North Boston to the contamination of a well. In this outbreak the infection was introduced into a small settlement by a traveling stranger who, while sick, stopped at a tavern where he died of the disease. The well at the inn became contaminated with the dejecta, and all of the nine families constituting the settlement, except three, developed typhoid fever. The families that escaped did not use the water from this well; two because of distance, and the third on account of a quarrel with the innkeeper. From a careful analysis of the circumstances in this outbreak, Dr. Flint drew the correct conclusion that the drinking water and that alone was accountable for the outbreak. Numerous observations of a similar character have been made since, and all without exception prove that contaminated drinking water is the most frequent causal factor in the production of typhoid fever.

That the mortality from typhoid fever bears a direct relation to the hygienic quality of the water-supply is shown by the typhoid death rate in American cities, which are usually supplied with polluted water. The following table shows graphically this relation.

This table shows that where a polluted stream is utilized as a water-supply the typhoid mortality is high and in proportion to the care exercised in guarding the stream against evident pollution. Thus in the states of Massachusetts and New York, where exceptionally good care is taken in this respect, the typhoid mortality is comparatively low, while in Pennsylvania, where streams used for drinking purposes are also used as sewers, the mortality is high. Another interesting and rather unexpected fact brought out is that in many cities supplied with artesian well water obtained at great depths, the death rate from typhoid fever is nevertheless high, as in Canton, Ohio, 40; Charleston, S. C., 122; Galveston, Texas, 67; Memphis, Tenn., 33; Montgomery, Ala., 54; San Antonio, Texas, 67; Savannah, Ga., 34; and South Bend, Ind., 35. It is difficult to find an explanation for this rather startling fact, considering the extreme depths at which the water is obtained. It is possible that owing to the limited supply in some places and the extreme hardness of the water in others, the people avail themselves of shallow wells on their own premises. However, whatever the explanation, the fact remains that artesian wells do not afford the immunity from typhoid fever one would *a priori* expect. This is equally true of springs and mountain streams, as shown by the typhoid mortality in Los Angeles, 43; Mobile, 62, and York, 83. This, however, should not occasion much surprise since springs and mountain streams, although by popular consent the very emblems of purity, may become the conveyors of disease when located in populous communities.

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* Read in the Section on Hygiene and Sanitary Science of the American Medical Association, at the Fifty-fifth Annual Session, June, 1904.

That this wanton destruction of human lives can be almost entirely eradicated is conclusively shown by the experience of European cities where the substitution of a pure water-supply for a polluted one or filtration of a polluted water has resulted in such a marked reduction in typhoid morbidity that, as is the case in Munich, the medical schools suffer for lack of morbid material to demonstrate the lesions of typhoid fever. Thus the typhoid mortality in Munich, from 1851 to 1874, was 170 per 100,000, reaching as high as 210 per 100,000 during 1851-59. The introduction of a pure water-supply reduced the mortality to 6 and as low as 3 (1892) per 100,000. An equally marked reduction was brought about by an improved supply in Dantzic, from 100 to 24 per 100,000; in Frankfort, from 60 to 15; in Vienna, from 120 to 6; in Brussels, from 100 to 37, and others. In this country a similar reduction in the typhoid mortality followed the introduction of a pure water-supply, as in Boston, where the death rate of 174 in 1846-49 was decreased to 30 per 100,000 for the period covered by the above table. In the case cited by John W. Hill, the cities of Jersey City and Newark, N. J., were for many years drawing their water from the badly polluted Passaic River with the resulting high typhoid mortality. In 1892, Newark abandoned the old supply in favor of Pequannock River, while Jersey City continued to draw from the Passaic. The effect of this change on the comparative typhoid mortality of both cities is shown in the following table:

DEATH RATE PER 100,000.

| | 1890 | 1891 | 1892 | 1893 | 1894 | 1895 | 1896 |
|---|---|---|---|---|---|---|---|
| Newark, N. J. | 60 | 81 | 45 | 28 | 15 | 17 | 21 |
| Jersey City, N. J. | 91 | 95 | 53 | 60 | 76 | 71 | 61 |

An equally marked reduction followed the introduction of slow sand filtration of polluted surface waters, as shown by the statistics of Hamburg, Berlin, Breslau, Bremen, London and some thirty or more European cities, and in this country, in Lawrence and Albany.

## PROPHYLAXIS OF TYPHOID.

Having demonstrated the propositions set forth in the beginning of this paper, we are now ready for the inquiry into the best means of preventing this scourge. Prophylaxis in the case of typhoid infection may be individual or domestic and collective or municipal.

*Domestic Prophylaxis.*—Individual prophylaxis embraces avoidance of contact in any way with the feces and urine of typhoid patients and the avoidance of ingestion of food and drink which is liable to contain the typhoid bacillus. Practically, domestic prophylaxis is limited to the boiling or filtering of the drinking water. As a general rule, boiling of the water is carried sporadically and only in times of a general scare, while domestic filtration is frequently the means of conveying infection rather than guarding against it.

The market is overcrowded with all sorts of filtering devices, for each of which it is claimed that it will purify water, but many of them are only capable of removing the turbidity. As a rule, the desire on the part of the manufacturers to make their filters attractive and unique (patentable) results in the production of complex devices which are difficult to clean and to keep clean. Even the best of them—the Pasteur and Chamberland filters—require frequent cleansing and sterilizing to make them at all efficient. As no nitrification takes place in the small filters, and they are merely strainers of various degrees of fineness, it is only a question of time, not more than four days, when the bacteria grow through the body of the filter. The care of domestic filters is usually entrusted to domestics, with the result that the filter undergoes an occasional ablution without any further treatment, if, indeed, it is not left to its own fate until no longer permeable to water.

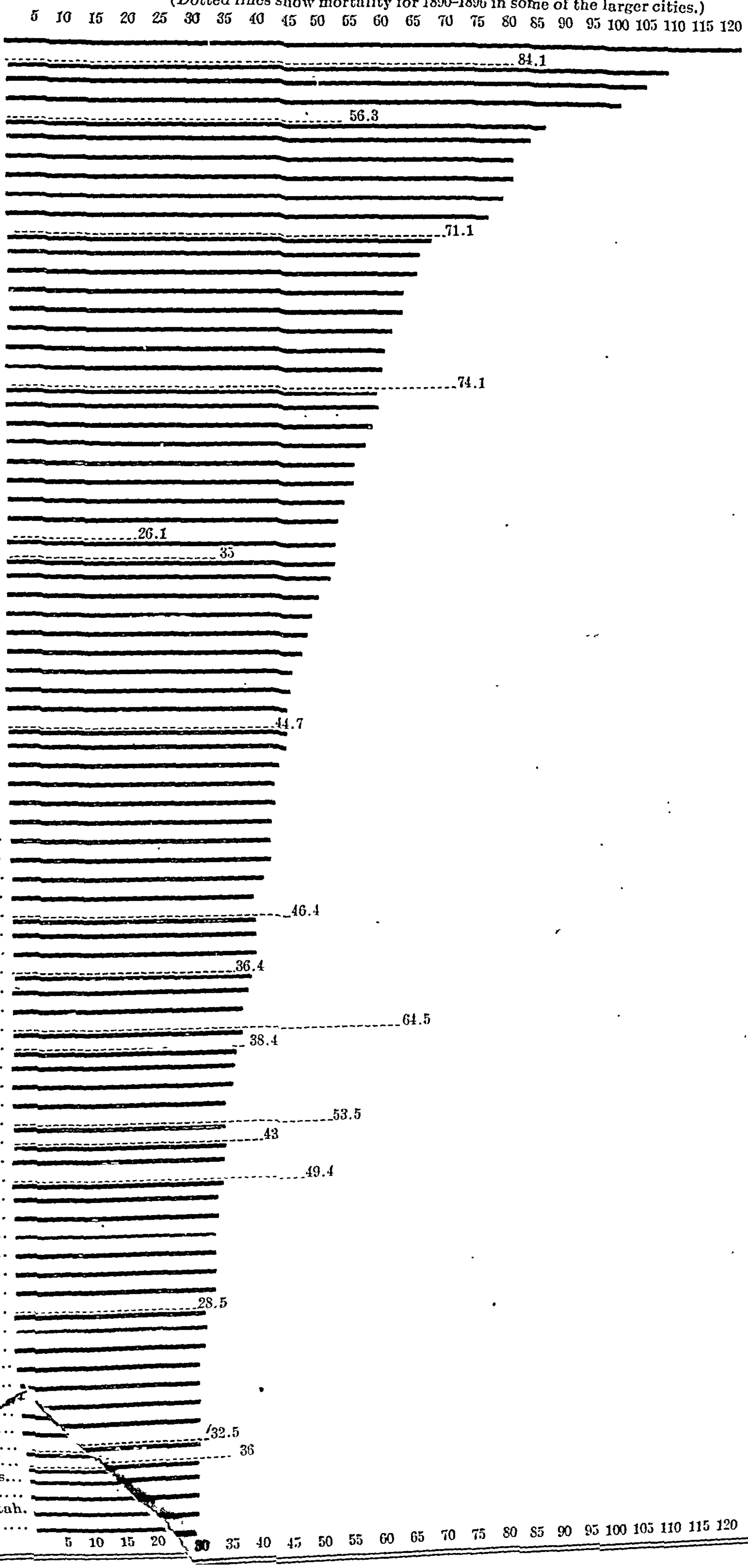
The inefficiency of domestic filters has been clearly demonstrated by a number of competent bacteriologists. During a typhoid epidemic in Providence, R. I., in 1888, it was found that a large number of cases occurred in families using domestic filters. These filters were examined by Drs. Swarts, Pruden and Ernst, with the result that *B. coli communis* was found in the effluent from every one of them.

Even if proper precautions are taken with the drinking water, raw water is used in washing vegetables which are not subject to subsequent cooking, and milk is used without boiling, such milk being liable to contain the germs of typhoid fever. That milk which had come in contact with utensils washed with polluted water or which had been diluted with such water may and does give rise to typhoid epidemics, has been proved by a number of investigators, and was shown by the milk epidemic at Elkton some three years ago, which was so ably investigated by Dr. Fulton. Oysters obtained from a sewage-polluted bed are frequently the cause of typhoid infection, while flies which had been permitted to come in contact with dejecta from typhoid patients and then alight on food are no doubt responsible for a considerable number of sporadic cases of obscure origin. In short, individual prophylaxis to be effective should not fall short of boiling all articles of food and drink which are liable to be a source of infection.

*Municipal Prophylaxis.*—Experienced sanitarians are only too painfully aware of the fact that individual prophylaxis against infectious diseases is a profitable subject to write about and to discuss, but which can not be carried out in actual practice. All wise rules and regulations become ineffective when confronted by ignorance or stubborn indifference on the part of those for whom the rules are intended. There is a peculiar state of the human mind which renders caution unheeded. The average man does not expect to die nor to get sick nor to meet with an accident. He can reason, and the more intelligent man does reason out the possibility of such occurrences, but his being rebels against such a possibility, and the knowledge of such possibility does not become an integral part of conscious life. The average *man*, when in perfect health, does not think of disease nor of death, and always hopes to escape the misfortunes which he may happen to

TABLE I.

Typhoid Mortality in American Cities of 30,000 and over for 1898, 1899 and 1900. Average per 100,000.
(Dotted lines show mortality for 1890-1896 in some of the larger cities.)



| City. | | | Source of water supply. |
|---|---|---|---|
| Charleston, S. C. | | 122 | Artesian wells. |
| Pittsburg, Pa. | 84.1 | 108 | Allegheny River. |
| Youngstown, Ohio | | 105 | Mahoning River. |
| Troy, N. Y. | | 101 | *Piscanenkill and Hudson rivers* |
| Knoxville, Tenn. | 56.3 | 88 | Tennessee R.; mech. filter. |
| Allegheny, Pa. | | 86 | Allegheny R.; filter crib. |
| Johnstown, Pa. | | 83 | Mountain streams. |
| York, Pa. | | 83 | Springs. |
| Wheeling, W. Va. | | 82 | Ohio River. |
| Albany, N. Y. | | 79 | Hudson River; unfiltered. |
| Washington, D. C. | 71.1 | 68 | Potomac River. |
| Galveston, Texas | | 67 | Artesian wells. |
| San Antonio, Texas | | 67 | Artesian wells. |
| Chester, Pa. | | 64 | Delaware R.; mech. filter. |
| Norfolk, Va. | | 64 | Lakes; mech. filters. |
| Superior, Wis. | | 63 | Lake Superior. |
| *Mobile, Ala.* | | 62 | Springs. |
| Duluth, Minn. | | 62 | Lake Superior. |
| isville, Ky. | 74.1 | 60 | Ohio River. |
| ville, Ind. | | 60 | Ohio River. |
| ster, Pa. | | 59 | Conestoga Creek. |
| e Rock, Ark. | | 58 | Arkansas River. |
| pokane, Wash. | | 57 | Spokane River. |
| Terre Haute, Ind. | | 57 | Wabash R.: mech. filter. |
| Richmond, Va. | | 55 | James River. |
| Montgomery, Ala. | | 54 | Artesian wells. |
| New Orleans, La. | 26.1 | 54 | Mississippi River. |
| Philadelphia, Pa. | 35 | 54 | Schuylkill and Delaware river |
| McKeesport, Pa. | | 53 | Youghiogheny River. |
| Binghamton, N. Y. | | 51 | *Wells-Susq'hanna R.; mech.filte* |
| Reading, Pa. | | 50 | Mountain streams and creek. |
| Allentown, Pa. | | 49 | Springs. |
| Wilmington, Del. | | 48 | Brandywine Creek. |
| *Hartford, Conn.* | | 47 | *Brooks.* |
| Dallas, Texas | | 47 | Trinity River. |
| Kansas City, Kan. | | 46 | Missouri R.; mech. filter. |
| Nashville, Tenn. | 44.7 | 46 | Cumberland R.; filter gal. |
| Portland, Ore. | | 46 | Lake Sebago. |
| Birmingham, Ala. | | 45 | Cahaba River and Creek. |
| Springfield, Ill. | | 44 | Saugamon River; filter gal. |
| Springfield, Ohio | | 44 | Subterranean filter gallery. |
| Los Angeles, Cal. | | 43 | Springs. |
| Topeka, Kan. | | 43 | Open and driven wells. |
| Elmira, N. Y. | | 43 | Chemung R. & Creek; mech.fil |
| Harrisburg, Pa. | | 41 | Susquehanna River. |
| Waterbury, Conn. | | 40 | Mountain brook; Naugatuck |
| Cleveland, Ohio | 46.4 | 40 | Lake Erie. |
| Canton, Ohio | | 40 | Artesian wells and springs. |
| Butte, Mont. | | 40 | Mountain streams. |
| Covington, Ky. | 36.4 | 39 | Ohio River. |
| *Minneapolis, Minn.* | | 39 | Mississippi River. |
| Denver, Colo. | | 38 | Platte R. and creek; mech. fil |
| Indianapolis, Ind. | 64.5 | 38 | Driven wells; filter gallery. |
| San Francisco, Cal. | 38.4 | 37 | Mountain streams. |
| Grand Rapids, Mich. | | 36 | Springs and Grand R; filter ga |
| Trenton, N. J. | | 36 | *Delaware River.* |
| Paterson, N. J. | | 35 | Passaic River. |
| Quincy, Ill. | 53.5 | 35 | Mississippi River; mech. filte |
| Baltimore, Md. | 43 | 35 | Impounding reservoirs. |
| South Bend, Ind. | | 35 | Artesian wells. |
| Cincinnati, Ohio | 49.4 | 35 | Ohio River. |
| Augusta, Ga. | | 34 | Savannah R.; mech. filter. |
| Savannah, Ga. | | 34 | Artesian wells. |
| Camden, N. J. | | 33 | Delaware River. |
| Houston, Texas | | 33 | Artesian wells. |
| Memphis, Tenn. | | 33 | Artesian wells. |
| Altoona, Pa. | | 33 | Springs and small streams. |
| Davenport, Iowa | 28.5 | 32 | Mississippi R.; mech. filter. |
| Seattle, Wash. | | 32 | *Lake Washington.* |
| Toledo, Ohio | | 32 | Maumee River; filter basin. |
| Columbus, Ohio | | 31 | Wells and Scioto R.; filter gal |
| Fort Wayne, Ind. | | 31 | Wells. |
| Kansas City, Mo. | | 31 | Missouri River; sed. and coag |
| Syracuse, N. Y. | | 31 | Skanenteles Lake. |
| Boston, Mass. | 32.5 | 30 | Lake Cochituate and Sudbury |
| Dayton, Ohio | 36 | 30 | Driven wells. |
| New Bedford, Mass. | | 30 | Acashnut River and pond. |
| New Haven, Conn. | | 30 | Several lakes. |
| Salt Lake City, Utah | | 30 | Mountain streams and creek. |
| Akron, Ohio | | 29 | Wells and lake. |

TABLE 1.—*Continued.*

| City. | 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75 80 85 90 95 100 105 110 115 120 | | Source of water supply. |
|---|---|---|---|
| Wilkesbarre, Pa...... | | 29 | Laurel River; mech. filter. |
| Auburn, N. Y........ | | 28 | Owasco Lake. |
| Chicago, Ill......... | 71.1 | 28 | Lake Michigan. |
| Erie, Pa............. | | 28 | Lake Erie; filter crib. |
| Omaha, Neb.......... | | 28 | Missouri River. |
| Portland, Ore........ | | 28 | Canal and Calapooga River. |
| Buffalo, N. Y......... | 34.3 | 27 | Niagara River. |
| Springfield, Mass..... | | 26 | Springs and brooks. |
| Lawrence, Mass...... | 75.2 | 25 | Merrimac River; *sand filter.* |
| Saginaw, Mich....... | | 25 | Saginaw River. |
| Tacoma, Wash....... | | [illegible] | Creek and Sponaway *Lake.* |
| Taunton, Mass....... | | 25 | Ponds. |
| Brockton, Mass....... | | 24 | Salisbury Brook. |
| Chelsea, Mass........ | | 24 | Metropolitan water supply. |
| Jersey City, N. J..... | 72. | 24 | Pequannock River. |
| Peoria, Ill............ | | 24 | Open wells. |
| Providence, R. I..... | 36.4 | 24 | Pawtuxet River. |
| Dubuque, Iowa....... | | 23 | Underground water. |
| Oakland, Cal......... | | 23 | Impounding reser.; mech. filter. |
| Pawtucket, R. I ...... | | 23 | Abbott's Run. |
| St. Louis, Mo........ | 39 | 23 | Mississippi River. |
| St Paul, Minn........ | | 23 | Lakes and Artesian Wells. |
| Salem, Mass......... | | 23 | Wenham Lake and Brook. |
| Scranton, Pa ........ | | 23 | Impounding Reservoirs. |
| Sioux City, Iowa..... | | 23 | Driven wells. |
| Newark, N. J......... | 38.1 | 22 | Pequannock River. |
| Utica, N. Y........... | | 22 | Surface water. |
| Bayonne, N J........ | | 21 | Artesian wells. |
| Des Moines, Iowa.... | | 21 | Raccoon River; filter gallery. |
| Fitchburg, Mass...... | | 21 | *Reservoirs* and ponds. |
| Hoboken, N. J........ | | 21 | Hackensack River. |
| Holyoke, Mass....... | | 21 | Ponds and brooks. |
| Lowell, Mass......... | 77.5 | 21 | Driven wells. |
| Schenectady, N. Y.... | | 21 | Well and Mohawk River. |
| Lynn, Mass........... | | 20 | Brooks and Saugus River. |
| Newton, Mass........ | | 20 | Ground water, filter basin. |
| Somerville, Mass..... | | 20 | Metropolitan water supply. |
| Detroit, Mich......... | 30 1 | 19 | Detroit River. |
| Manchester, N. H.... | | 19 | Protected lake. |
| New York, N Y....... | 19 | 19 | Protected water shed. |
| St. Joseph, Mo....... | | 19 | Missouri River; mech. filter. |
| Cambridge, Mass..... | | 18 | Brook and pond. |
| Haverhill, Mass...... | | 18 | Ponds and lakes. |
| Lincoln, Neb......... | | 18 | Wells. |
| Milwaukee, Wis..... | 29 2 | 18 | Lake Michigan. |
| Brooklyn, N. Y....... | 18 | 18 | Open and driven wells. |
| Worcester, Mass...... | | 18 | Impounding reservoirs. |
| Rochester, N. Y...... | | 17 | Double supply, Hemlock Lake. |
| Malden, Mass......... | | 16 | Ponds and driven wells. |
| Fall River, Mass..... | | 15 | Watuppa Lake. |
| Bridgeport, Conn..... | | 14 | Small streams. |
| Elizabeth, N. J....... | | 13 | Artesian wells and Elizabeth R. |
| Yonkers, N. Y........ | | 11 | Brooks. |
| Rockford, Ill......... | | 5 | Artesian wells. |

cur to others. It is well that it is so, for otherwise the first wreck of a train, or collision of a street railway would permanently stop travel; the burning of a building accompanied by destruction of life would lead to a desertion of [illegible]larly constructed, etc. In the case of [illegible], however, this psychic trait leads to a disregard of precautions defeating the efforts of sanitarians. This is why the precautionary measures intended to prevent typhoid infection remain, like some of the commandments in the Good Book, mere wise sayings without any practical application.

If individual prophylaxis is impractical, what can be done to prevent typhoid epidemics. If the individual can not or will not save himself from infection, the municipality should make an effort to prevent the infection from reaching the individual. In the case of typhoid fever, this can be accomplished with comparative ease, owing to the fact that the avenues of egress and ingress of the typhoid bacillus are limited and accessible. Every municipality should provide for its citizens a drinking water obtained from unimpeachable sources or else purified. In this country it is almost impossible to obtain an absolutely pure natural supply, owing to the high cost of land along water channels and the usually crowded habitation on water-sheds.

The table above cited shows conclusively that communities supplied from what is usually considered a pure source suffer from high typhoid mortalities. It is immaterial whether the water-supply is designated as "springs," "deep wells," "artesian wells," "mountain streams," or what not so long as communities using such waters suffer from a typhoid death rate much above 20 per 100,000, the source should be abandoned, or, what is more practical, the supply purified. Such a course would not be without a precedent, for in Europe, water-supplies which in this country would be considered ideal are purified by sand filtration. Thus the comparatively pure lake water-supplies of Zurich and Wandshek are filtered; Copenhagen filters its spring and well waters; Charlottenburg filters its well water; Stockholm filters the lake and well water, and the spring and lake waters supplying Stuttgart are filtered.

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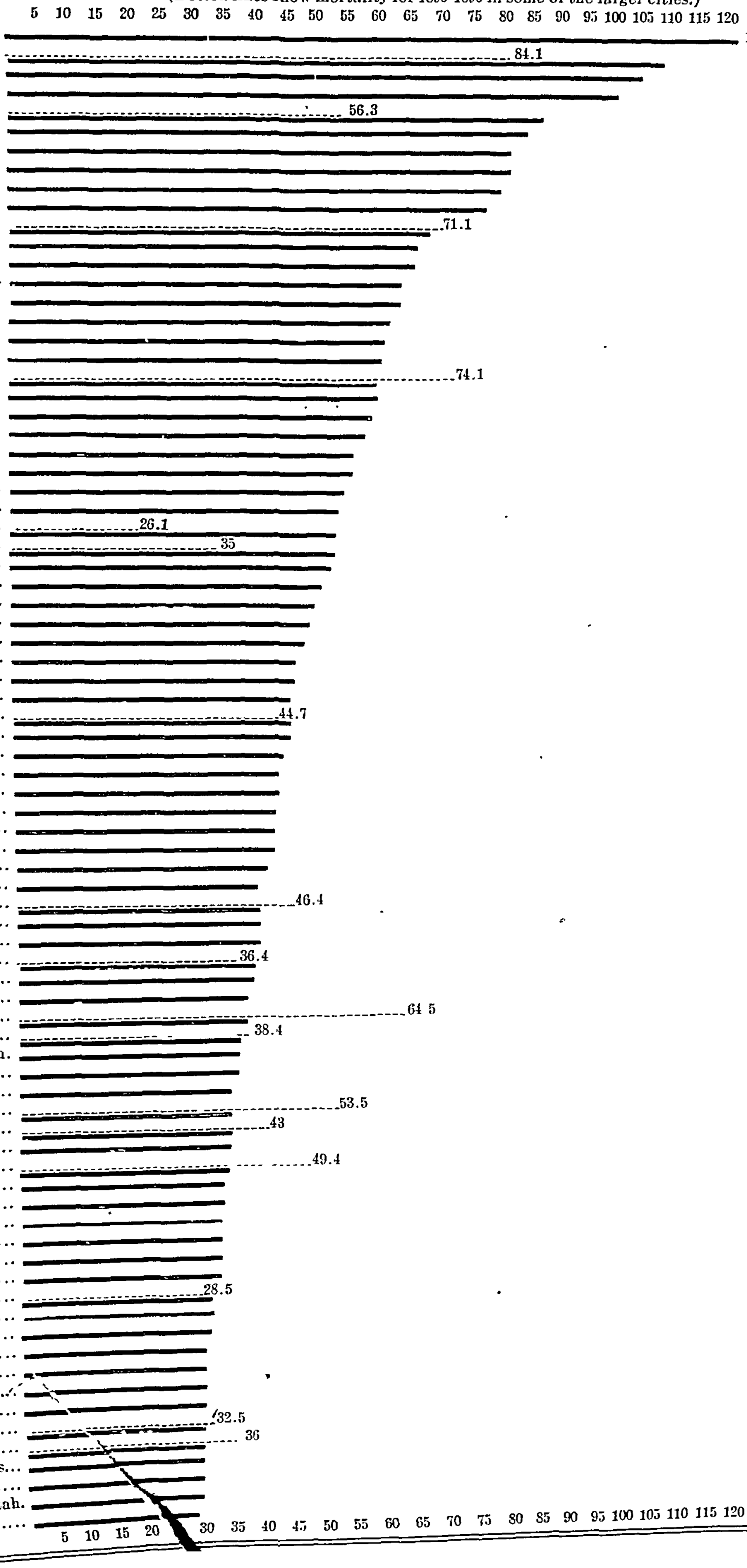
(Dotted lines show mortality for 1890-1896 in some of the larger cities.)



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| Allegheny, Pa. | | 86 | Allegheny R.; filter crib. |
| Johnstown, Pa. | | 83 | Mountain streams. |
| York, Pa. | | 83 | Springs. |
| Wheeling, W. Va. | | 82 | Ohio River. |
| Albany, N. Y. | | 79 | Hudson River; unfiltered. |
| Washington, D. C. | 71.1 | 68 | Potomac River. |
| Galveston, Texas | | 67 | Artesian wells. |
| San Antonio, Texas | | 67 | Artesian wells. |
| Chester, Pa. | | 64 | Delaware R.; mech. filter. |
| Norfolk, Va. | | 64 | Lakes; mech. filters. |
| Superior, Wis. | | 63 | Lake Superior. |
| Mobile, Ala. | | 62 | Springs. |
| Duluth, Minn. | | 62 | Lake Superior. |
| Louisville, Ky. | 74.1 | 60 | Ohio River. |
| Evansville, Ind. | | 60 | Ohio River. |
| Lancaster, Pa. | | 59 | Conestoga Creek. |
| Little Rock, Ark. | | 58 | Arkansas River. |
| pokane, Wash. | | 57 | Spokane River. |
| erre Haute, Ind. | | 57 | Wabash R.: mech. filter. |
| Richmond, Va. | | 55 | James River. |
| Montgomery, Ala. | | 54 | Artesian wells. |
| New Orleans, La. | 26.1 | 54 | Mississippi River. |
| Philadelphia, Pa. | 35 | 54 | Schuylkill and Delaware ri |
| McKeesport, Pa. | | 53 | Youghiogheny River. |
| Binghamton, N. Y. | | 51 | Wells-Susq'hanna R.; mech.f |
| Reading, Pa. | | 50 | Mountain streams and creek |
| Allentown, Pa. | | 49 | Springs. |
| Wilmington, Del. | | 48 | Brandywine Creek. |
| Hartford, Conn. | | 47 | Brooks. |
| Dallas, Texas | | 47 | Trinity River. |
| Kansas City, Kan. | | 46 | Missouri R.; mech. filter. |
| Nashville, Tenn. | 44.7 | 46 | Cumberland R.; filter gal. |
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| Springfield, Ohio | | 44 | Subterranean filter gallery. |
| Los Angeles, Cal. | | 43 | Springs. |
| Topeka, Kan. | | 43 | Open and driven wells. |
| Elmira, N. Y. | | 43 | Chemung R. & Creek; mech.fi |
| Harrisburg, Pa. | | 41 | Susquehanna River. |
| Waterbury, Conn. | | 40 | Mountain brook; Naugatuc |
| Cleveland, Ohio | 46.4 | 40 | Lake Erie. |
| Canton, Ohio | | 40 | Artesian wells and springs. |
| Butte, Mont. | | 40 | Mountain streams. |
| Covington, Ky. | 36.4 | 39 | Ohio River. |
| Minneapolis, Minn. | | 39 | Mississippi River. |
| Denver, Colo. | | 38 | Platte R. and creek; mech. fi |
| Indianapolis, Ind. | 64 5 | 38 | Driven wells; filter gallery. |
| San Francisco, Cal. | 38.4 | 37 | Mountain streams. |
| Grand Rapids, Mich. | | 36 | Springs and Grand R; filter g |
| Trenton, N. J. | | 36 | Delaware River. |
| Paterson, N. J. | | 35 | Passaic River. |
| Quincy, Ill. | 53.5 | 35 | Mississippi River; mech. filt |
| Baltimore, Md. | 43 | 35 | Impounding reservoirs. |
| South Bend, Ind. | | 35 | Artesian wells. |
| *Cincinnati, Ohio* | 49.4 | 35 | Ohio River. |
| Augusta, Ga. | | 34 | Savannah R.; mech. filter. |
| Savannah, Ga. | | 34 | Artesian wells. |
| Camden, N. J. | | 33 | Delaware River. |
| Houston, Texas | | 33 | Artesian wells. |
| Memphis, Tenn | | 33 | Artesian wells. |
| Altoona, Pa. | | 33 | Springs and small streams. |
| Davenport, Iowa | 28.5 | 32 | Mississippi R.; mech. filter. |
| Seattle, Wash. | | 32 | Lake Washington. |
| Toledo, Ohio | | 32 | Maumee River; filter basin. |
| Columbus, Ohio | | 31 | Wells and Scioto R.; filter ga |
| Fort Wayne, Ind. | | 31 | Wells. |
| Kansas City, Mo. | | 31 | Missouri River; sed. and coa |
| Syracuse, N. Y. | 32.5 | 31 | Skanenteles Lake. |
| Boston, Mass. | 36 | 30 | Lake Cochituate and Sudbur |
| Dayton, Ohio | | 30 | Driven wells. |
| New Bedford, Mass. | | 30 | Acashnut River and pond. |
| New Haven, Conn. | | 30 | Several lakes. |
| Salt Lake City, Utah. | | 30 | Mountain streams and creek. |
| Akron, Ohio | | 29 | Wells and lake. |

ater-supply or of adopting some method of purificaion in the hands of a competent body of sanitarians, like the state boards of health, or, in case the latter is incompetent to cope with the problem, in the hands of a special commission of recognized sanitarians. In Germany the duty of guarding the public water-supplies devolves on the imperial board of health. In this country, where each state enjoys its home rule, the power should be vested in the state board of health. This is practically being done in the progressive state of Massachusetts, with what results may be seen from their mortality statistics. Where the state board is weakened by ill-advised political appointments, or where the proper legislation covering this point can not be secured, the physicians, represented by their medical societies, should exercise a controlling influence.

When a problem of such magnitude as a water-supply is presented, where so much is at stake, the physicians should step forward and safeguard the community against the results of an ill-advised move. In their medical societies they should appoint competent committees to investigate the points at issue and to submit reports based on a thorough sifting of the evidence. With such reports, the society can easily mold public opinion and force the adoption of such measures that would best serve the interests of the community. This was done by the medical society of Washington, D. C., when the question of filtration was being discussed. What the medical society has accomplished is matter of congressional record, of which the society, especially its able committee, may well feel proud. It was due to their zealous efforts and able management that the official recommendations of Colonel Miller were set aside and a system of slow sand filtration adopted instead of mechanical filtration as originally recommended. It is a matter of extreme regret that the medical societies of Pittsburg and of other cities similarly situated do not take up the noble work of preventing typhoid epidemics.

The prevention of pollution of a water-supply with sewage should receive careful consideration. It is past human understanding that in a civilized country one community should be permitted to discharge its raw sewage into the drinking water of another because it happens to be separated by a state line. It is an offense for communities in Pennsylvania to pollute each other's drinking water, but it ceases to be an offense when the town of Coatsville, Pa., discharges its raw sewage into the Brandywine, a small stream supplying Wilmington with drinking water. There should certainly be a law requiring all towns and cities which find it necessary to discharge their sewage into a stream, to purify the sewage before it enters the stream. Such a law could be enacted by each state separately and the benefits would be reciprocal. That sewage can be successfully purified is shown by the investigations of the Massachusetts State Board of Health and by the experience of cities in this country and abroad. It appears that the septic tank method is the one promising the best results.

Wherever these general measures can not be introduced, or pending the introduction of such measures, efforts should be made to prevent the discharges from typhoid patients from reaching a water-supply, either general or local, municipal or individual. This can be accomplished in one way only, and that is by a thorough disinfection of the excreta of typhoid patients. To accomplish this the Wilmington Water Department made an appeal to the local physicians asking them to report the cases of typhoid fever and see to it that the attendants on the sick follow the directions given on a special card prepared by the department. The circular letters, together with the card of instructions, are here given. I have reason to believe that the scheme is working satisfactorily.

### First Circular Sent Out to the Physicians.

*Dear Doctor:*—Pending the introduction of an efficient system of purification of our water supply, the Board of Water Commissioners is making an effort to protect the Brandywine Creek against pollution, and more especially pollution with discharges from persons suffering from typhoid fever. To accomplish this the board has asked the city and state boards of health, through their respective secretaries, to request the physicians practicing along the Brandywine watershed to notify the proper health officers of all cases of typhoid fever occuring in their practice along the Brandywine Creek or any of its tributaries; these reports to be forwarded by the health officers to the water department. As soon as a report is received a circular letter will be sent by the water department to the physician in charge of the case, giving full directions as to the proper method of disposing of the fecal discharges. The physician will be asked to place these directions in the hands of the attendants and see to it that they are carried out.

It is thus evident that the first and most important step in carrying out the plan as outlined above is the faithful and expedient notification of cases of typhoid fever, and we earnestly appeal to you individually to co-operate with us in this important undertaking.

The city of Wilmington, with a population of over 80,000 people, depends for its water supply on the Brandywine Creek, which, as you no doubt know, is exposed to contamination all along its watershed of over twenty miles. The recent sad experience of Butler, Pa., where, to quote an authoritative report, "impure water and lax sanitary administration," resulted in a typhoid epidemic of about 1,300 cases with 60 deaths, and a similar epidemic in Ithaca, N. Y., of 1,300 cases and 73 deaths, not to mention several other typhoid epidemics in this country, point to the danger to which Wilmington, similarly situated, is exposed. Moreover, the experience of Plymouth, Pa., in 1885, shows that the pollution of the drinking water with the fecal discharges from just one typhoid patient was sufficient to precipitate an epidemic of 1,104 cases and 114 deaths.

This danger, which is by no means exaggerated, can be largely removed by the active co-operation of the physicians with the health authorities in securing the strict observance of such sanitary precautions as will prevent the contamination of the drinking water with living typhoid germs. The measures now proposed by the water department for the protection of its own watershed will, we believe, secure the desired immunity, provided, however, the active co-operation of the physicians can be obtained.

You now realize the responsibility we place on you, and we feel confident that you, as a physician and fellow-citizen, will respond to our request and notify your health officer of every case of typhoid fever, however mild, occuring in your practice within the district bordering on the Brandywine or its tributaries.

Respectfully,

### Circular Letter Accompanying Card of Instructions.

*Dear Doctor:*—We received from ———— the information that you have under your charge a case of typhoid fever in the home of ————.

In pursuance of our plan outlined in a previous communication, we ask you to place the inclosed circular into the hands of the nurse or attendants and use your influence in persuading them to carry out the instructions.

Should you experience any difficulty in the matter by reason of indifference on the part of the people, or should the family be too poor to purchase the necessary disinfectants, you will greatly oblige us by communicating the fact to the undersigned.

In endeavoring to prevent the pollution of our drinking water we fully realize the difficulties which we will encounter and which we will be unable to overcome unless we are favored by your hearty support and co-operation. May we suggest that you make the disinfection of the excreta a subject of inquiry at your regular visits so that the attendants may see that you are taking a personal interest in the matter and thus become more fully convinced of its importance?

Respectfully yours,

To the Attendants. Preserve for Reference.

### HOW TO TAKE CARE OF THE DISCHARGE FROM TYPHOID PATIENTS.

A CIRCULAR OF INSTRUCTIONS ISSUED BY THE WILMINGTON WATER DEPARTMENT.

Typhoid fever is caused by a germ which finds its way into the food or, more frequently, the drinking water.

The germ causing typhoid fever is *invariably* derived from the stools and urine of persons suffering from the disease.

The disease may be also communicated through soiling one's hands with the discharges and then permitting the hands thus soiled to come in contact with the food.

Infection may be prevented by destroying the germs in the discharges by means of disinfectants.

Therefore, to save yourself as well as others from infection, observe the following precautions:

1. Keep on hand a five-gallon jug or other suitable vessel filled with any one of the following solutions:

Solution No. 1. Chlorid of lime of the best quality, guaranteed to contain at least 25 per cent. of available chlorin and free from a strong odor on opening the box, 6 ounces to each gallon of water.

Solution No. 2. Formalin (40 per cent.) 5 fluid ounces to each gallon or a little over a pint and a half to the 5 gallons of water.

Solution No. 3. Carbolic acid 4 ounces to the gallon or a pint and a quarter to the 5 gallons of water.

The choice of any of these solutions should be determined by the ability to obtain the pure article. Whatever solution is used the vessel should be kept tightly corked.

2. Have the receptacles for the stools (bed-pan, night-chamber, etc.) provided with a closely-fitting lid, or improvise a lid from several thicknesses of paper with some weight over it. It is better to have two receptacles of a kind so that a clean one may always be on hand for the patient's use.

3. When required for use, put 1 pint (2 glassfuls) of the disinfectant into the vessel (or if the urinal is used, one-quarter of a pint) that the discharges may come in contact with the disinfectant on their very issue from the body. No harm is done if some of the disinfectant should happen to spill on the bed clothes.

4. Remove the vessel containing the discharges to some secluded place in the house, add enough of the disinfectant to completely cover the discharges, stir up the contents with a small stick, replace the lid and allow it to stand for at least two hours. Remember that the longer you permit the discharges to come in contact with the disinfectant the more harmless do they become and the less obnoxious to handle.

5. If there is no water closet in the house, the discharges, after the disinfection, should be buried in the soil at least 100 feet from a well or stream.

6. When your hands become soiled with the discharges, they should be washed, first in the disinfectant (neither of the disinfectants will injure the skin) and then with soap and water.

7. All articles of the patient's clothing which have become soiled, and all the sheets, towels, napkins, etc., used by the patient should be kept in solution No. 2 or 3 (not in solution No. 1) until they are washed.

8. Use the disinfectant freely on all occasions requiring cleansing of soiled surfaces, and remember that "an ounce of prevention is worth a pound of cure."

Such precautions, if rigidly enforced, with the aid of proper ordinances or legislative enactments would practically eliminate pollution of sources of water-supply, especially in the country. I use the term "practically" advisedly, for pollution may still occur from "walking" typhoid patients, and from patients whose disease is either wrongly diagnosed or from the urine of convalescents. In addition, there will still be some physicians mean enough to disregard all rules and regulations, physicians, who, to save themselves a little trouble will jeopardize the lives of hundreds.

Generally speaking, the eradication of typhoid fever will depend on the closing of all avenues by which the formidable enemy may gain entrance, and the successful issue of the combat will depend on the strategy and erudition of our most important warriors—our sanitary officers and the medical profession.

## DISCUSSION.

**Dr. G. T. Swarts**, Providence, R. I., said that in the state of Rhode Island for four or five years a small mechanical filtration plant has been in constant use. The amount of water used is a matter of only 250,000 gallons per diem, still, as the system which is used is but one initial of what might be 100 of the same form, there is no reason why the result should not be the same. Its efficiency is supervised by the State Board of Health. It seems to be necessary that some state or municipal authority shall have control of all filtration plants owned by individuals or by corporations, with the power to make changes in the administration of the works, otherwise failure is apt to result.

**Dr. A. Robin** said that he is under the impression that when mechanical filters work satisfactorily they are under the control of experts, or are on a very small scale. In a large plant, when there is a desire to save time or money, and competent supervision is lacking, a filter will fail. On the other hand, the operation of a slow sand filter is much simpler and works with more certainty. Wherever careful supervision by trained men is possible the mechanical filters may prove equally efficient.

# THE SURGICAL ASPECTS OF MAJOR NEURALGIA OF THE TRIGEMINAL NERVE.

### A REPORT OF TWENTY CASES OF OPERATION ON THE GASSERIAN GANGLION, WITH ANATOMIC AND PHYSIOLOGIC NOTES ON THE CONSEQUENCES OF ITS REMOVAL.

HARVEY CUSHING, M.D.
Associate Professor of Surgery, the Johns Hopkins University.
BALTIMORE.

*(Concluded from page 1008.)*

## FURTHER ANATOMIC AND PHYSIOLOGIC NOTES.

One of the most important chapters in Krause's valuable monograph deals with the *"Physiologie des Trigeminus,"* and the painstaking observations, drawn from the study of his first thirteen cases, are therein recorded. It is regrettable that in his more recent (1901) communication, containing fourteen additional cases, he has limited his communication, as have most other surgeons who have reported on cases of ganglion extirpation, purely to the operative respects of the procedure with little, if any, comment on the consequences of the neurectomy. There are many points referable to the distribution and function of the trigeminus which still need elucidation, and no opportunity comparable with this clinical one is offered to the anatomist or experimentalist for their determination.[36]

*Sensory Anesthesia.*[37]—A more or less accurate knowledge of the trigeminal fields has been gained through several methods of observation, attached to many of which there are distinct drawbacks. The anatomic dissections of Frohse and Zander fail to give the functional distribution; the experimental method, carried by Sherrington on the ape to its highest possible attainment, is seriously blocked by the impossibility of communication, so necessary for the interpretation of sensations; Henry Head's observations on the segmental fields determined by the distribution of zoster (objective) and of referred pain and tenderness (subjective) fail to give sharp outlines for the individual areas; and so on. A study of the fields of anesthesia, after a purposeful intracranial neurectomy in man, is comparatively free from these limitations, particularly when combined with the study of the areas resulting from lesions of the adjoining (postaxial) nerves. A series of such operations, all conducted on similar lines, gives an opportunity of establishing what may be considered the normal or average field and also of determining its variations; these data the study of isolated cases can not give. It is necessary, furthermore, that the completeness of the neurectomy be assured for observations made after partial extirpations or non-surgical lesions have heretofore been responsible for much uncertainty in regard to the physiology of the nerve. Accompanying most of the 20 histories recorded above are photographs of the patients, taken usually on or about the tenth day and portraying the areas of postoperative cutaneous anesthesia as they had been plotted on the face. Considerable variation is shown in the posterior confines of the field in the earlier cases, but when it became an invariable practice to follow a given method of making the tests it soon became evident what slight differences there were from case to case in the configuration of the boundaries.

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[36] Tedious and time-consuming as are the necessary examinations, patients, who have been relieved of their pain, will, almost without exception, gladly co-operate in them, and to these twenty individuals I owe many thanks, not only for their help in this respect, but for the privilege of reporting on their case and of reproducing the foregoing photographs.

[37] A study of the trigeminal fields in detail has been made the subject of another communication (The Johns Hopkins Hospital Bulletin, July, 1904) and the results only need be summarized here.

It may be said, in general, that two lines, seen in their typical and almost unvarying outline in the photographs of the more recent cases, can be easily mapped out. One of them, the more posterior, delineates the area of tactual anesthesia as tested with a hair esthesiometer. This boundary, starting from the midline of the vertex at a point somewhat posterior to the bregma, runs obliquely forward and then downward across the parietal region of the scalp until it approaches the attachment of the ear, when it curves backward, inclosing a portion of the ascending rim of the helix, together with the crus of the same; thence, at the upper edge of the tragus, it dips into the external auditory meatus, the anterior and upper wall of which as far as the drum is anesthetic; it reappears at the lower edge of the tragus, curves upward over the cheek at a somewhat varying angle, then turns downward and, keeping at a distance of about 5 cm. from the angle of the inferior maxilla, crosses its horizontal ramus and reaches the median line again, a few centimeters below the mental eminence. Ascending from this mesial point to the lower lip, into the mouth (Fig. 33), over the gum, along the lingual frenum and tongue as far back as the circumvallate papillæ; here the boundary again deflects from the median line, passing along this row of papillæ to the palatoglossal fold, thence to the anterior pillar of the fauces, the margin of the soft palate and uvula, at the tip of which the midline is again reached, and this it follows until it returns again to the starting point on the crown by way of the midline of the soft and hard palate, the alveolar process, the upper lip, nose and forehead. The entire Schneiderian membrane of the operative side is, of course, devoid of sensation other than that of olfaction, for the sense of smell is unaffected. There is one detour of this line, namely, where it crosses the pharynx, that has been omitted from the above, as I am not quite certain whether or not there is a strip of esthesia which separates the oral from the pharyngeal areas. It is, however, demonstrable that the Eustachian orifice is, at least, hypesthetic, and it is quite probable that the mucous membrane field bears the same relation to this opening that the skin field does to the external auditory meatus, as would be expected on morphologic grounds. The first visceral cleft, the anlage of the ear, headward to which the trigeminus is the only sensory nerve, presents, as it were, more or less of a natural barrier to overlapping, since the nerves reach the skin before the ventral closure of the cleft. The auditory canal is consequently a place of anchorage, so to speak, at which the trigeminal outlines remain fixed, no matter how they may be otherwise altered from the embryologic condition through the later development, particularly of the occiput and lower jaw, into their adult configuration. The tragus and a small portion of the helix, inclusive of its crus, develop from the mandibular bar on the trigeminal side of the cleft and naturally are sensatized by the fifth nerve. In the last five or six cases the external auditory canal has been carefully tested, showing, as a rule, that its upper and anterior wall are rendered anesthetic, together with a greater or less part of the tympanum, tapping on which with a horse hair, through a speculum, gives only the auditory sensation of loud rapping without the sensitiveness evinced on the opposite, the normal side. In one of the cases the drum was bisected by the handle of the malleus into an anterior anesthetic and a posterior normally esthetic field. A negative, so to speak, of the trigeminal skin fields may be determined by outlining the areas of anesthesia consequent on cervical nerve lesions (Fig. 34) and the combination of the two suffices to show the presence of a small intervening area within the concha presumably innervated by a cutaneous branch from the vagus.

An exception must be made to the statement of completeness of tactual anesthesia within the confines of the mucous membrane field outlined above. The anterior portion of the tongue is not totally deprived of its sensation by the neurectomy, certain forms of common sensation being preserved, and I am inclined to believe that the impulses travel, together with the taste fibers, by way of the chorda tympani and facial nerve (*pars intermedia*) to the brain.

The line which limits the field of analgesia is generally a few centimeters within the line of tactile anesthesia, does not, as a rule, extend to the tragus, and has other peculiarities which cannot be discussed here. It may be said, however, that in the intervening zone between the boundaries for pain and touch, shown in the later photographs, painful impulses give no dolorous sensation, but only the impression of contact or pressure.

*Muscle Sense.*—After a total neurectomy, this is completely abolished in the trigeminal field and may be of serious import from an operative and cosmetic standpoint. Careful observation will show in all cases a more or less marked asymmetry of the face, apparent not only at rest, but also during volitional or even emotional movements of the face. At rest, particularly during the early postoperative period, the face seems somewhat swollen, due in part to the vasomotor paralysis, but chiefly to the loss of postural sense; the lips droop slightly, the nasolabial fold is less deep than normal and there is a general loss of tonicity in the expressional musculature; the position of the tongue and palate are also affected. The condition may be accentuated by volitional movements; whistling or "trumpeting" out the cheeks is difficult or impossible; the mouth distorts in an effort to show the teeth by opening lips alone, etc. Expressional movements also may be affected, though usually in less marked degree and depending, I presume, on the character of the cortical control through the facial nerves over these normally symmetrical movements. On one occasion (Case 20) I was astounded on the fourth or fifth day to see develop what was supposed to be a total facial paralysis. No movements whatever were possible in the facial musculature on the operative side; lagophthalmus and all the other signs of a typical Bell's palsy were present. Persistence of normal electrical reactions, however, banished this opinion. Normal control was soon regained. I doubt not that some of the complicating cases of facial paralysis heretofore recorded have been of this nature.

In view of Sherrington's experiments on the production of monoplegia, by the severance merely of the sensory nerve-roots alone to a limb, it would not be surprising had immobility of half of the face proved to be an invariable consequence of ganglion extirpation. It is probably obviated through the bilateral character of facial movements. At a later period, months or years after the operation, so far as I have made out, there apt to be an overaction of the muscles on the side, with perhaps a slight deepening of the nasolabial fold and of the furrows radiating from the eye (crowsfoot). There is a very simple way of demonstrating the absence of postural sense, for faradization of the muscles is accompanied by no appreciation of their changed position, provided the movements are not sufficient to be transmitted to the opposite side. The electrical "sting," of course, is unappreciated, other than by a "coppery" taste, in case the electrode lies within e anesthetic area, and, indeed, there is no better way mark out areas of tactual anesthesia than by the sting of a fine unipolar platinum electrode.

*Motor Paralyses.*—The necessary sacrifice of the motor root of the trigeminus has already been discussed in connection with the operative procedure. That the chief muscles of mastication, the temporal, masseter and pterygoids, on the side operated on, are consequently paralyzed needs no comment. The atrophied muscles undergo a fibrous change, with subsequent contracture, as has been mentioned. Paralysis of the pterygoids af- a measure, lateral chewing movements, and on e mouth the deflection of the jaw toward the ted on evidences the unilateral loss of func- ese two muscles. The protruded tongue, also, is usually deflected toward the operative side, not, however, from any palsy, but because it tends to keep in the median line of the deflected jaw from which it obtains its sense of orientation. Loss of muscle sense in the anterior portion of the tongue, as in the case of the facial muscles, may play some part in bringing about the postural attitude of the protruded tip, and with the organ at rest in the mouth it is often apparent that on the side operated on it lies lower than on the sound side. Of the buccinator muscle I have no data except that food is likely to collect in the cheek until training overcomes the difficulty, a condition probably due to the anesthesia of that side of the mouth and to interference with postural sense rather than to any palsy of the cheek. The muscle probably receives its entire motor supply from the facial nerve, its sensory fibers, according to Henle, being of trigeminal origin. A palsy of the mylohyoid and anterior belly of the digastric is evident on palpation in the majority of cases, but leads to no visible or functional disturbances.

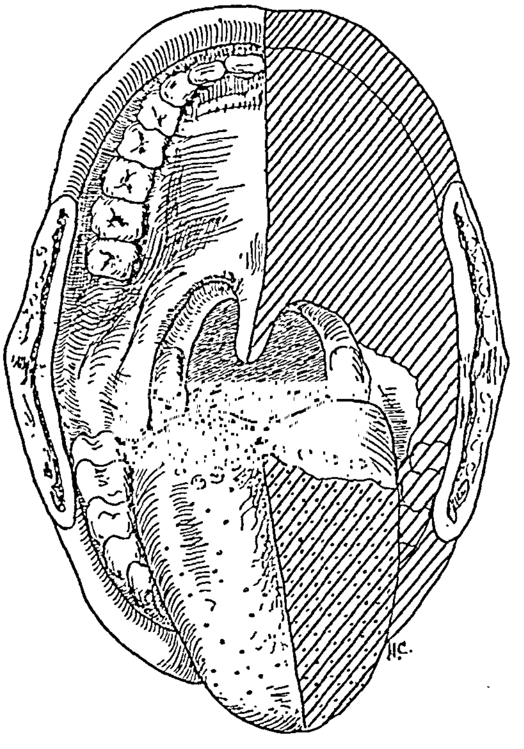

Fig. 33.—Schematic view of visible portion of mucous-membrane field of anesthesia. Lingual area retains its sensitivity to taste, as well as to certain forms of common sensation.

Two other muscles, the tensor tympani and the tensor palati[38] are said to be innervated likewise by the trigeminus. The position of the drum, its degree of tension, the ability to recognize high-pitched sounds with a Dalton whistle, have been in most cases carefully looked into without evidencing any postoperative disturbance with sufficient regularity to accredit it to a paralysis of the tensor tympani. One of my cases, as did one of Krause's, complained for some time of a ticking sound on the side operated on, which could not be accounted for in any such simple way as by the presence of dried blood or of cerumen in the external ear. Other than this the patients seem to have be free from symptoms referable to the ear.[39]

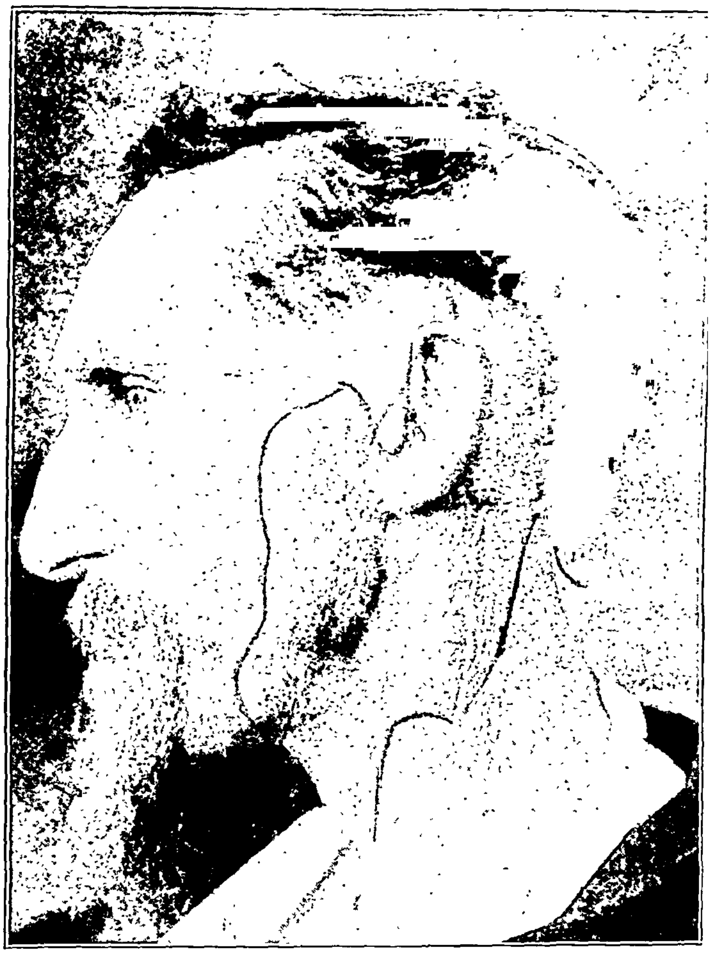

Fig. 34.—Area of tactual anesthesia, due to an intervertebr enucleation of the right dorsal root ganglia of the second an third cervical segments, in a case of neuralgia of this region.

It is otherwise with the tensor palati, if that is th palatal muscle affected by the neurectomy. The innervation of the muscles of the soft palate ha long been a question of dispute. There are three possible sources of supply: according to Sir Charles Bell through fibers from the portio dura (*N. facialis*), acting through Meckel's ganglion and its posterior palatine branches; Hughlings Jackson attributed them t the accessory nerve of the vagus; others believe tha they are entirely or in part supplied by the trigeminus The studies on which these claims are based and th arguments raised against them need not be entered int here.[40] More than one source of supply, however, is probable, and there is quite conclusive evidence adduced by Turner, Hughlings Jackson, Beevor and Horsley, with others, that the accessory nerve of the vagus is a partial, if not the entire, source, as they claim. Turner says: "It would seem, therefore, that the muscles of the soft palate derive their motor supply from the pharyngeal plexus through the pharyngeal branch of the vagus and that this nerve obtains its sensory fibers from the accessory nerve to the vagus." He doubts the possibility of the tensor palati receiving any motor supply from the trigeminus, although Bell, Romberg, Gowers and others have held this opinion. Krause, alone of those who have reported on the postoperative physiologic sequelæ of ganglion extirpation, makes mention of palatal examinations and has seen no postural anomalies whatever.[41] I have always attempted before the operation, when the patient's condition allowed, to examine the position of the palate both at rest and during phonation, and, although unfortunately in several of the cases in which the most marked postoperative changes were observed a preliminary palatal examination had been precluded owing to the severity of pain, nevertheless the data, such as they are, seem suggestive, if not convincing. A characteristic postoperative asymmetry has been demonstrable in several cases; a condition which remains permanent. Four of these cases were found beforehand to have symmetrically placed palatal arches. The characteristic position may not always be apparent except on phonation of the sound "ah," or especially of a prolonged "eh," which accentuates the weakness of the arch on the side operated on. The abnormal position consists in a tilting of the uvula toward the side of the neurectomy, in a narrowing and heightening of the arch on the sound side, and with a broadening and lowering, apparently from relaxation, of the arch on the operative side. The deformity can not be accounted for, I think, by the deflection of the jaw during the palatal examinations or by any other possible connection with the paralyzed pterygoid muscles.

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[38] *N. tensor veli palatini* (Anat-Nomen).

[39] Lucae in 1874 in his essay on "Accommodation" showec the importance of the M. tensor tympani in perception of musica tones. Subjective humming or ringing in the ears has been reported (Schmidt, Müller) as a symptom accompanying the early stage of the involvement of the ganglion in a disease process.

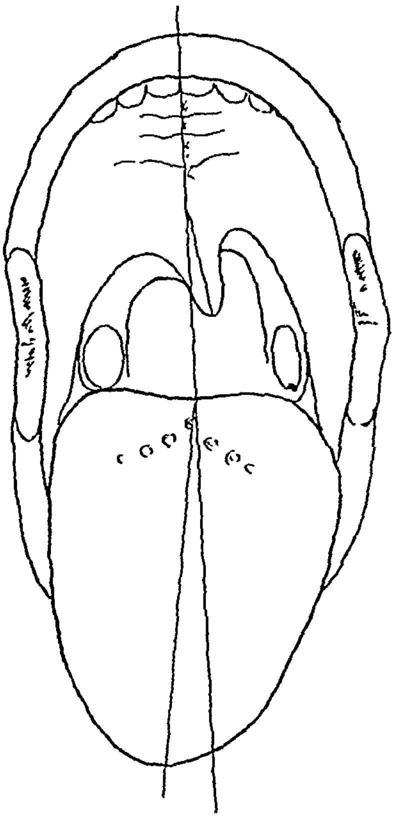
Fig. 35.—Postural deformity after extraction of right ganglion (Case 7). Deflection of jaw and tongue to right and of uvula to left; heightening and narrowing of fauces on left during phonation, not apparent on right.

The necessity of preliminary observations is very important, and not until they had been made in a series of cases not only in these, but in other and normal individuals, was the frequency of asymmetrical positions, especially in the uvula, fully appreciated. In some of the ganglion cases the uvula, even though the arch of the palate has shown the characteristic features described above, would be deflected toward, instead of away from, the paralyzed side, and I have not included these irregular cases in the group mentioned above. More conclusive still of a trigeminal supply to the palate is the fact that in one case after the extirpation (Case 12) the stump of the *N. mandibularis* was electrically stimulated, and with the mouth held open sharp contractions with deflection of the palate were produced, an observation which was several times repeated, though only on this single case. This result is not in accordance with the observations of Reid (quoted by Turner), as he failed to elicit any such movements on trigeminal stimulation in animals, and apparently only on excitation of the accessory nerve of the vagus have experimentalists been able to elicit movements of the palate, at least up to the time of Turner's report. There is one very important case in this connection in which, unfortunately, it was impossible before the operation, owing to the patient's condition, to make preliminary observations. In this patient Meckel's ganglion had been removed at a previous operation, the motor supply of the soft palate, as stated above, being supposed by some to come from the portio dura via this ganglion to the palatal muscles. In this patient, as the accompanying outline (Fig. 35) will show, the deformity has been more marked than in any other of my cases, and the patient, a public speaker, says that when fatigued or when talking rapidly he has some difficulty with pronunciation of the palatal sounds. The tensor palati plays the additional part of opening the Eustachian tube during deglutition, and its paralysis may very naturally lead to some of the subjective noises in the ear which have been described as resultant to ganglion extirpation. It is an interesting fact that not only the sensory supply of the trigeminus remains fixed in the adult at both the auricular and pharyngeal orifices of the passage which has developed from the first visceral cleft, but also that the two small muscles which, from the mandibular side, play a part in the physiologic actions of the canal are innervated, supposedly through the otic ganglion by the motor branch of the same nerve.

*Taste.*—A report has already been made summarizing the results of observations on the first thirteen of these cases in reference to the possibility of a path for the taste fibers by way of the fifth nerve.[42] It is needless here to do more than add some notes to this previously detailed account. Although there is no morphologic basis whatever in its support, a great number of clinical observers have found that lesions of the trigeminus are accompanied by a loss of taste on the anterior two-thirds of the tongue on the corresponding side. Thus has originated the belief in a devious path for the fibers conveying these sensations, the most generally accepted being the following: from the tongue via the lingual nerve to the chorda tympani and so to the geniculate ganglion; thence by way of the great superficial petrosal to Meckel's ganglion, to the maxillary ramus, and thus via the Gasserian ganglion to the trigeminal nerve and to the brain. It would seem that a study of cases of trigeminal neurectomy would have finally determined whether or not this is the actual course taken by these gustatory impulses. On the contrary, the results have been most conflicting. This possibly may have been due to several causes—to the neglect or impropriety of subjecting a suffering individual to preliminary tests for taste; the more or less uncertainty regarding the total extirpation; to improper methods of making the tests; or to a failure on the part of the patient or of the observer to take into consideration the almost complete loss of common sensation from the section of tongue under examination. In my previous report it was mentioned that in one only of the thirteen cases had there been a failure to establish a final return of taste perception. This was accounted for on the ground that there is occasionally demonstrable a temporary cessation in transmission of gustatory impulses for a few days after the operation, a fact which possibly may be due to the acute degenerative changes in the lingual nerve whose fibers intimately accompany the chorda fibers for a part of their course. A single examination limited to the anesthetic side in this case (Case 1) had been made on the sixth day; it was subsequently found that the anterior part of his tongue, on both sides, did not possess any sensitiveness to the four cardinal taste qualities. It must always be borne in mind that in some individuals, especially those advanced in years, taste perception on the anterior part of the tongue may be dulled or entirely absent. Hence, the need of preliminary observations for purposes of control. In my last seven cases particular stress has been placed on these examinations for taste. In one (Case 13) there was marked postoperative impairment, and, although there is a return of gustatory sensation, sweet and saline substances are not recognized with quite a normal acuity or promptness. The next five cases showed absolutely no impairment whatever. Two of them, indeed, have believed that the taste sensations were more acute than on the sound side, as there was no confusion from other sensations associated with the placing of the moist swab on the tongue. It seemed in Case 19 that an exception to the rule had been found. Owing to her great pain and inability therefrom to protrude the tongue no preliminary tests whatever were made. Taste perception after the operation proved to be completely and permanently absent on the side operated on. It was only learned subsequently from her previous attendant that he had some years before performed an intrabuccal operation with evulsion of the inferior dental nerve and, as is so often the case, the lingual nerve and chorda tympani had at this time been divided; there had been no reunion in the fibers of the latter nerve.

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[40] Aldren Turner: The Innervation of the Muscles of the Soft Palate. Journal of Anatomy and Physiology, vol. xxiii, 1889, p. 523.

[41] Krause: *Die Neuralgie des Trigeminus.* 1896. p. 83. *"Ich habe in meinen Fällen keine Stellungsanomalie von irgend welchem Belang am weichen Gaumen bemerkt."*

[42] The Taste Fibers and Their Independence of the N. T geminus. The Johns Hopkins Hospital Bulletin, vol. xiv, p. 71.

Unless I have made some gross error, the evidence seems conclusive that the gustatory impulses do not, unless in very exceptional cases, and then only partially, enter the cranium in company with the *N. trigeminus*. There must be some other path for them, and I am inclined to the view of the morphologists that the chorda tympani represents, in part at least, the sensory portion of the facial, whose central stem is the *N. intermedius* of Wrisberg. I believe, also, from the facts mentioned in another section in regard to the preservation of certain other sensory qualities in the tongue, that there may be some fibers sentient to tactual stimuli which follow this same path to the brain. Overlapping from across the median line or from the postaxial field of the glossopharyngeus can not possibly account for the findings. In attempting to explain those cases in which loss of taste has been found by reliable observers to be present months or years after the neurectomy, the suggestion was offered that late fibrous changes taking place in the regenerated lingual nerve might serve in some instances to block transmission along the intermingled special-sense fibers of the chorda tympani. It should be noted, furthermore, that it may be necessary to make several tests in these cases. It has occasionally been found that on the first trial the patient may not appreciate or may fail to recognize the quality of a gustatory impulse which on a second examination, later, may be immediately identified; also, that after responding quickly and promptly to taste impressions on the anesthetic half of the tongue the patient, possibly fatigued in the interim by a long examination for sense qualities in other areas, may show a very marked delay in the recognition of precisely the same strength of solution should the gustatory tests be repeated.

### AFTERWORD.

This malady, whose clinical portrayal so long ago as by Avicenna was given with an accuracy sufficient to render subsequent descriptions almost superfluous, waited 800 years before even its simple anatomic location could be understood, waited, indeed, until Bell and Majendie accomplished for the peripheral nervous system what William Harvey the century before had done for the circulation, namely, to establish a sound physiologic basis of observation. Not until Sir Charles Bell's demonstration of separate paths for afferent and efferent impulses was it possible to institute any rational surgical measures toward the relief of a purely sensory affliction. Before this time division of the motor nerve had been recommended and actually practiced for neuralgia of the face,[43] under the delusion that wise nature had provided for this important region two nerves, the fifth and the seventh, both of which subserved equally the function of transmitting motion and sensation to the same areas. It is a presumption possibly to believe that it will not require another long era before the etiologic factors of the disease are unveiled and its pathology put on an equally sound basis. Its morbid nature as yet, and this in spite of the clinical definiteness of the malady, remains a mystery; and, as a matter of fact, other diseases of the posterior root ganglia, and it is not impossible that there are many, have hardly begun to be classified. We seem to have advanced some what beyond Dr. John Fothergill,[44] who considered that the neuralgia was due to a "sharp, corrosive, cancerous acrimony"; but how much beyond, possibly a later generation alone can tell. Oliver Wendell Holmes,[45] it will be remembered, advocated most emphatically the malarial origin of the disease.

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[43] It is interesting to know that Dr. J. C. Warren of Boston according to Dr. Holmes' essay on "Neuralgia," published in 183 was the first to divide the facial nerve at its exit from the stylo mastoid foramen for tic douloureux. It is interesting also tha associated with the resultant paralysis there followed a "limited degree of relief," doubtless from the immobility of the face which made the inauguration of paroxysms from the lips and nose, etc. much less likely.

The Gasserian ganglia, which have been removed in the cases above recorded, have nearly all been subjected to examination by expert neuropathologists. Dr. Spiller[25] and Dr. Barker[11] have already published careful reports on the histologic findings of the first four of them in which they were so kind as to take an interest. The tissues from the later cases have been studied by Dr. Rusk, who feels that no lesion sufficiently characteristic to consider it typical of a particular disease is present. Numerous other ganglia, removed postmortem, have been studied as controls and exceptional opportunities for carrying out the investigation were offered by the character of the surgical material itself; several of the ganglia were from patients on whom no previous neurectomies had been performed so that cellular changes consequent on degenerations following these earlier operations led to no confusion in the histologic picture, as they so often do; furthermore, the tissues from the fatal case made it possible to compare a ganglion from the neuralgic with that from the supposedly sound side of the same individual.

The Gasserian ganglion, whether or not primarily so, in the end seemingly becomes affected, and clinical evidence goes to show that the process, whatever it be, is migratory, involving, as pointed out above, one after the other of the three groups of cells which represent the fused tripartite ganglion. The experiments which Dr. Barker and I carried out, though few in number, sufficed to show by the study of Nissl changes that the groups of cells are quite distinct, and thus it is that one cluster alone may become involved in an acute lesion like that of herpes zoster, the pathology of which Head and Campbell have done so much to clarify. The ganglion lesions which produce this segmental outcrop of herpes, particularly when occurring in individuals who have passed middle life, not uncommonly result in a vexatious so-called "postzoster neuralgia." I have seen several individuals suffering from this residual of zoster, two of them after a herpetic involvement of the ophthalmic division of the trigeminus. Though an acutely troublesome and intractable malady, it remains clinically quite distinct from true neuralgia; the pain is not paroxysmal in the same degree, and remains limited to the original field of vesiculation, showing no tendency in the case of the semilunar ganglion to migrate to the other divisions of this structure. Its severity at times may be great enough to demand surgical intervention, and here again are shown characteristics distinguishing it from the more common type of neuralgia, since peripheral operations in the postzoster form do not suffice even to give temporary relief, as I have learned to my sorrow through several failures; the posterior root ganglia must be removed.

The morbid lesion underlying true trigeminal neuralgia, unlike that of zoster, has so far eluded search and the histologic changes in the cells, the swelling and vacuolization, the chromatolysis, alterations in the tigroid, nuclear fragmentation and other departures from the normal which have been so painstakingly described are, as Coenen[46] has emphasized, due in large part, if not entirely, to the effects of earlier peripheral neurectomies and correspond histologically to the lesions found, for example, in dorsal root ganglia months after the amputation of a limb. The tissues from two of the cases in Lexer's series examined by Coenen showed no histologic abnormalities whatever; no peripheral operations had preceded the ganglion extirpation in these two cases. And with these findings those of Monari, Schwab and ourselves have been in almost exact accord.

Let us hope that some one with new histologic methods and possibly more extensive material may solve this pathologic riddle, for not until the lesion is known may we expect to discover its causal agent, and not until then may we have hopes of supplanting for surgical measures others less difficult, though they could hardly be more certain of affording immediate and permanent relief.

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# NORMAL SALT SOLUTION AND OTHER LOCAL ANALGESICS

## IN THE OFFICE TREATMENT OF ANO-RECTAL DISEASES.*

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Recent discoveries and improved technic in the use of local analgesics have enabled us to treat as ambulatory cases many patients suffering from various forms of minor ano-rectal diseases whom we formerly sent to the hospital for treatment. This ofttimes obviates the necessity of putting aside all business and social obligations and of making a two or more weeks' stay in a hospital, with all its attendant anxieties and embarrassments. Such patients, with few exceptions, are now operated on at the office or at the patient's home. Before operating, if there are no contraindications, about the only question asked the patient is: "Did your bowels move to-day?" If so, and if an operation is indicated or necessary, and the patient so desires, the field is prepared and the operation is performed, either a normal salt solution or a eucain-adrenalin solution being used as the local analgesic.

In my first experiments some years ago I used cocain as a local anesthetic. In many instances the toxic effects of this drug were so alarming that I discontinued its use. Recognizing, however, the great advantages and utility that a satisfactory local analgesic would afford in treating many of these cases, I continued my investigations and experiments along these lines.

Recently, in selected cases, and quite satisfactorily too, I have used sterile water for this purpose. The use of water as an analgesic was suggested to me by Dr. Gant of New York, who has reported over 300 cases of various kinds operated on under the influence of this agent. He states, however, that the injection in some instances may cause considerable discomfort or even pain. I found this to be true, especially in those cases of acutely inflamed thrombotic piles and abscesses, or in which it was necessary to make the injections into the deeper tissues, and in cases in which the operation necessarily was prolonged.

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[44] Fothergill: A Painful Affection of the Face, Medical Observations and Inquiries, vol. v, p. 129, London, 1773, Lettsom's edition of Fothergill's works.

[45] Holmes: "The Nature and Treatment of Neuralgia," Boylston Prize Dissertation, 1836.

[46] H. Coenen: Mikroskopische Befunde am Ganglion Gasseri in den 15 Füllen von Lexer, Archiv für klin. Chir., 1902, vol. lxvii, p. 333.

* Read before the Chicago Medical Society, 1904.

ism, as far as is known, consists of four stages, a primary and a secondary cytoplasmic and a primary and a secondary intranuclear. They also found the bodies in the skin lesions excised during life, as well as those obtained at autopsy. So far as is known, these bodies in the skin lesions of vaccinia and variola, are peculiar to, and characteristic of, those diseases. Councilman, Magrath, Brinckerhoff[1] and Tyzzer[2] have found only the primary cytoplasmic stage in vaccinia.

With the foregoing facts in our possession, it is a natural step to utilize this knowledge for the diagnosis of vaccinia and variola from each other and from other diseases.

### DIFFICULTIES IN THE DIAGNOSIS OF VARIOLA.

While the clinical picture of variola in its usual type, especially in well established epidemics, is clear cut and easy of recognition, it is well known that isolated cases, particularly early in epidemics, often present clinical pictures of indefinite characters and are difficult of exact diagnosis. Among the affections most commonly confused with variola are varicella, syphilis, pemphigus, impetigo contagiosa, measles, lichen, the bites of certain vermin, and certain drug rashes. Hemorrhagic variola may be mistaken for various other forms of purpura. Bancroft suggests that certain cases of variola without characteristic eruption are thought to be influenza.

To properly diagnose and isolate primary cases is of the greatest importance in the control of variola. In many instances the failure to do this is due to the ignorance on the part of a large proportion of practitioners concerning the usual and unusual clinical pictures of this disease. Largely on this account, the first cases of variola in a community go unrecognized, until after the exposure of a number of susceptible persons, and the consequent outbreak of numerous secondary foci of the disease. These occurrences often lead to disputes between physicians and health authorities. This unfortunate condition of affairs can be avoided by a ready and sure method of laboratory diagnosis.

### METHODS OF LABORATORY DIAGNOSIS OF VARIOLA.

*Animal Inoculation.*—This method has been used heretofore to some extent. The bovinæ and rabbits will develop vaccinia after inoculation with the contents of variola vesicles and pustules. Magrath and Brinckerhoff[5] have similarly produced variola inoculata in the monkey by inoculation with variola virus obtained from three epidemics. Park[6] has proposed this method for differentiating variola from varicella.

Animal inoculation then, by the development of vaccinia in the bovinæ or in rabbits, or of variola inoculata in monkeys, may enable one trained in the appearances of the vaccinia and variola eruptions to make a positive diagnosis within from five to eight days, or within from eight to eleven days if one has to resort to the histologic study of the experimental lesions.

While of distinct value in certain instances, this method is too slow to be of general use. This is no doubt the chief reason why it has not been more widely adopted.

*Study of Sections of Excised Skin.*—With the possible exception of varicella, it is definitely known that none of the skin lesions which may be mistaken for variola and vaccinia, show the peculiar bodies which have lately been described in these diseases and grouped into the life cycle of a protozoan parasite by Councilman[1] and his pupils,[2] by Calkins[3] and by Howard and Perkins.[4] In the one case of varicella from which I have had the opportunity of studying sections of the excised skin, no such bodies were found.

Whether one agrees or not that the bodies described in vaccinia and in variola by the above-mentioned observers are protozoan parasites, is not of importance for our present purpose. For this it is sufficient that these bodies, in the sequences given below, are constantly present in the skin lesions of vaccinia and variola, and are absent in other affections for which these diseases may be mistaken. As they are peculiar to and characteristic of vaccinia and variola, and as the sequence of these bodies are different in these two diseases, I, therefore, propose the microscopic examination of skin lesions excised from suspected cases of variola for the purpose of diagnosticating this disease in doubtful cases. I believe that in this way a positive diagnosis can be readily made in almost all, if not in all cases, provided the technic advised below is carried out with exactness.

I[4] have studied skin lesions excised during life from eight cases of variola in different stages of the disease, from the early papular to the pustular stage, and have found *Cytorrhyctes variolæ*, in some stage of its life cycle, present in all. The cytoplasmic and intranuclear bodies are the same in all respects, whether the skin be excised during life or obtained at autopsy.

### TECHNIC.

Small pieces of characteristic areas of the skin with the suspicious eruption are excised, under local anesthesia by ethyl chlorid, with the aid of a sharp knife or curved scissors. Care must be taken to obtain specimens large enough to include the whole lesion and the underlying corium. The specimens should be fixed at once in Zenker's fluid, the outside of the bottles properly disinfected, and the bottle and contents transported to the laboratory as soon as possible. Zenker's fluid is the only fixative that gives satisfactory results. It has the following composition:

| | |
|---|---|
| Bichromate of potassium .......... | 2.5 grams |
| Sulphate of sodium ............... | 1. gram |
| Corrosive sublimate ... .......... | 5. grams |
| Glacial acetic acid ............... | 5. c.c. |
| Water ......................... | ad, 100. c.c |

Dissolve the corrosive sublimate and the bichromate of potassium in water, with the aid of heat; add the acetic acid just before using.

From now on the time element is of importance and the fixing, imbedding and preparation of sections must be carried out with the utmost celerity consistent with good results. If the material must be sent to a distant laboratory, the time consumed by the journey will suffice for proper fixation. For fixation in Zenker's fluid, the time for small pieces of tissue may be cut down to from eight to twelve hours. By allowing a similar time for washing, the tissue may be run through the various steps for paraffin imbedding and good sections obtained in from sixty to ninety hours from the time the skin is excised. Thin sections are necessary, and I prefer them from three to four microns thick; but good results may be had with sections of seven or eight microns in thickness. Paraffin imbedding is the only method to be relied on for this purpose.

There is little chance that frozen sections may be of

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5. Magrath and Brinckerhoff: Experimental Variola in the Monkey, Jour. of Med. Research, 1904, vol. xi, p. 230.

6. Park, W. H.: A Practical Method of Differentiating Between Variola and Varicella by Means of the Inoculation of Monkeys, Trans. Assn. Am. Phys., 1902, vol. xvii, p. 208.

service, but this method might be tried. It is possible that in a certain percentage of cases currettings from the deepest part of the skin lesions spread on cover glasses or slides, fixed in Zenker's fluid and stained, may show the bodies to be described below. In the one case in which I tried it, the bodies were not found. Of course, the mercury in the sections must be removed before staining. Sections may be stained by any of the following methods: (1) Eosin and methylene blue; (2) Borrel's stain; (3) iron hematoxylin, followed by aurantia; (4) Weigert's fibrin stain, preceded by carmin. The best methylene blue and eosin method is that advised by Mallory.[7] He stains first in 5 per cent. aqueous solution of yellowish eosin for twenty minutes, followed by Unna's alkaline methylene blue for five minutes. Differentiate and dehydrate in 95 per cent. and in absolute alcohol and clear with xylol on the slide. The methylene blue method is useful, however, only for the primary cytoplasmic bodies (see infra). The Borrel stain should be used as advised by Calkins.[3] After hydrating the sections through progressively weaker alcohols, stain for twenty minutes in a saturated aqueous solution of magenta (Magentaroth, Grübler), wash in water and stain for five minutes in a picro-indigo-carmin solution, made by adding one part of a saturated aqueous solution of picric acid to two parts of a saturated aqueous solution of indigo-carmin. Differentiate in the alcohols, ending in absolute, and clear in xylol. In properly stained sections the red stain is completely extracted from the nuclei of the epithelial cells, the cytoplasm of which is stained a pale green.

The peculiar bodies to be described below stain brilliantly. The other staining methods mentioned may be found in any good work on laboratory technic. Councilman has obtained exquisite pictures of the different forms of variola bodies in sections stained by Weigert's method.

For a detailed description of the bodies described below the reader is referred to the articles of Councilman, Magrath, Brinckerhoff, of Tyzzer, of Calkins, and of Howard and Perkins above referred to, which are amply illustrated. I give here simply a short objective description of what I consider as necessary for the diagnosis of variola in any stage from the papule to the pustule. For this purpose I will give as nearly as is possible the relation of each sequence of bodies to the corresponding stage of the skin lesion. Any one with a fair training in pathologic or clinical microscopy, with a good light and an oil immersion lens should be able to recognize them without any difficulty, in properly fixed and stained preparations.

### CORIUM. PAPULAR STAGE.

The blood vessels, especially the blood capillaries of the papillæ, are dilated, and may or may not contain an increased amount of blood, the leucocytes of which bear their normal proportion to the erythrocytes. In hemorrhagic cases, the hemorrhage from the distended capillaries is evident. In many papillary capillaries, the endothelial cells are swollen, desquamated, and increased in number. The perivascular lymphatics show similar changes and often contain large mononuclear leucocytes.

In a few cases I have found in the capillaries and between them and the membrana propria of the skin small round homogeneous deeply staining bodies identical with the early bodies to be described below in the epithelium. No other forms of the specific bodies are found in the corium, which for our present purpose is without further interest.

### EPIDERMIS. PAPULAR STAGE.

In the early papules, occasionally between but commonly within the deeper layers of epithelial cells, there are a variable number of small, homogeneous, usually round, bodies which stain deeply with nuclear dyes. These bodies in the cytoplasm, called gemmules by the advocates of their parasitic origin, are usually surrounded by small vacuoles. They may be in any part of the cytoplasm, but usually are about the nucleus. In sections stained first in magenta and then in methylene blue they stain bright red, while the nuclear chromatin stains blue. In older papules, these bodies and their surrounding vacuoles are larger—the former measuring three or more microns in diameter. They are at this stage often oval, reniform or crescentic in shape, and show differentiation with various stains.

With methylene blue and eosin, the main mass is red, with here and there unstained areas. In still older lesions the bodies are larger and show a delicate reticulum which stains, with eosin, magenta and orange. Up to this time there is little change in the epithelial cells except that those containing the bodies are swollen.

In more advanced lesions the cytoplasmic bodies are larger—from 4 to 10 microns in diameter—and very irregular in shape. In Borrel preparations they are marked by larger and smaller red dots and bars and irregular areas on a green background. About this time, fluid accumulates in the lesion and the cells are much swollen. The next forms to be found vary from six to sixteen microns in diameter, and are round, oval or oblong, and have the appearance of amebæ. With Borrel's stain (the best stain from now on), the main mass of the bodies stains green and usually numerous small, round, equidistant, homogeneous bright red dots are present. Some of the bodies at this time show a delicate red-staining alveolar meshwork. Somewhat later there are found large amebæ-like forms, in the spaces of the reticulum of which one can see numerous small, round, homogeneous deeply staining dots of the size and appearance of the earliest bodies described in the epithelial cells. These dots (called gemmules) stain with methylene blue, iron hematoxylin, magenta or fuchsin.

Similar dots may also be seen in the intercellular spaces. This entire sequence of forms is common to both vaccinia and variola. In many cases they are also found at this time in the cytoplasm of cells at the margin of the original lesion. This is believed by the advocates of their protozoan nature to be local autoinfection.

The lesion at this time contains a variable amount of fluid, which varies with the severity of the case. Many epithelial cells are swollen and some are necrotic. The vesicular stage is now well established.

### VESICULAR STAGE.

When this is fully established, in many lesions few cytoplasmic forms may be found. In some lesions, however, a second cytoplasmic sequence of bodies is discernible. Of these the earliest forms so far described are small round or oval bodies staining green with Borrel's stain and yellow with the iron hematoxylin and aurantia stain. They lie in the cytoplasm, from which they are separated by a distinct membrane. Later, similar forms containing from two to four dots stain-

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[7] F. B. Mallory: Jour. of Med. Research, 1903-4, vol. x, p. 487.

ing with nuclear dyes are seen. The next stage in this secondary cytoplasmic sequence is the appearance of larger bodies of the same type, surrounded by a membrane, but divided into four segments by faint lines of cleavage. Neighboring cells may contain from four to eight small oval somewhat granular bodies of about the size of an erythrocyte, each containing a central chromatin-like dot. Similar forms may be seen in the intercellular spaces and in the cytoplasm and nuclei of other cells.

This completes the secondary cytoplasmic sequence, which is believed by Howard and Perkins to be the second stage in the cycle of *Cytorrhyctes variolæ* So far as is known, it is only found in well-established vesicles in variola, but never in vaccinia. The lesion at this time does not usually contain enough leucocytes to warrant calling it pustular, but this varies with the severity of the case. I will, therefore, with this explanation, describe the next sequence, the primary intranuclear stage, under the vesicle.

### PRIMARY INTRANUCLEAR STAGE.

This series of forms in the nucleus is readily recognizable, and begins with the appearance, in the nuclei of the epithelial cells of the deeper rows of the variola lesion, of small bodies from three to eight microns in diameter, with granular cytoplasm and a single central chromatin-like dot. This body is identical in appearance with the end body of the last-described sequence. The smaller forms do not fill the nucleus. With the progression of the series, the intranuclear bodies are increasingly larger and more complicated in structure. The first difference in the latter respect is shown by the presence of numerous small deeply staining chromatin-like dots throughout these bodies; the next difference is marked by the occurrence of a variable number of hollow rings in addition to the dots. Later, in some forms, small peripheral vesicles, each containing a central deeply staining dot, is found about these hollow rings. In other forms the whole solid body appears to be changed into a collection of minute rings with central dots; this body has a peculiar morula appearance.

The small dots within the vesicles, on close examination with high powers, are found to be hollow, circular structures or rings somewhat thickened at one side. This third sequence is interpreted as follows by the adherents of the protozoan interpretation of these structures:

The solid mass with the central dots, which somewhat later develop numerous scattered chromatin-like dots, is the pansporoblast; the rings developing within these are the young primary sporoblasts, and the dots formed within the vesicles about these rings are the spores.

At this stage the lesion almost always contains enough cell detritus and leucocytes to be styled pustular; therefore, the fourth sequence of bodies will be described under the pustular stage of the pock.

### PUSTULAR STAGE.

At this period in the evolution of the skin lesion, the superficial layers of the epidermis are markedly projected outward, with a cavity between them and the lower epidermis. This space is filled with fluid, cell detritus, leucocytes and erythrocytes in variable numbers. The cells of the deepest layers, as before, contain the characteristic bodies. The earliest form of the secondary intranuclear sequence of bodies is marked by the presence in the nuclei of many of these cells o from one to six of the minute ring bodies met with the end of the primary nuclear sequence. In many lesions these two sequences of forms overlap, some nuclei containing the end forms of the primary, and others the first forms of the secondary intranuclear sequence. The progress of the latter sequence is shown first by the presence of larger intranuclear ring bodies with increased thickness of one side of the ring. After this, intranuclear rings are seen which have a single or multiple row of small peripheral vesicles. In larger forms which may nearly fill the nucleus, there is in each of these peripheral chambers a small deeply staining body identical with the "spores" of the primary intranuclear body. The bodies containing these dots are called the secondary sporoblasts, and the dots the secondary spores, which are believed to be the end forms of the life cycle of *Cytorrhyctes variolæ.*

The bodies of this secondary intranuclear sequence are readily found and stain red with Borrel's stain and with fuschin; black with iron hematoxylin, and blue with Weigert's stain. With the completion of this series of forms the pustular stage is complete, and the progress of the pock is at an end. In some lesions, however, at this stage, at the border of the pock, the cytoplasm of some epithelial cells may contain the bodies described in the papule as the primary cytoplasmic sequence; this is regarded as local autoinfection. None of the bodies are found in the healing pock.

In studying the variolous lesion with the purpose of finding the above-described bodies as a basis of diagnosis, it is, of course, necessary to remember that these structures occur in definite groups or sequences, and that it is useless to look for the cytoplasmic forms (with the exception of the "local autoinfections") in late lesions or for the intranuclear forms in early lesions.

As has been stated above, it is not my purpose to give in the present paper a full description and interpretation of these bodies, and the reasons for believing them to be protozoan parasites. This has been done in another article.[4] I wish at this time simply to cal attention to them as definite structures peculiar to vari ola and vaccinia on which the diagnosis of these disease can be based, believing, as I do, that an early diagnosi can thus be made in doubtful cases, with the resul of cutting short variola epidemics.

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# TREATMENT OF INTESTINAL AMEBIASIS IN THE TROPICS.

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The happiest results which may follow any researc are those which lend themselves to practical application in the prevention or cure of disease, and nearly all of the great advances made in therapeutics are of this class.

Because the progress made in the treatment of testinal amebiasis since its identification as an in pendent disease by Osler, Councilman and Lafleur has been of an empirical nature, there has been a long delay in introducing the methods most generally ployed at the present time, and these are still far fro satisfactory. The differences which exist regarding the treatment of the disease in various places the geographic belt where it is endemic, have also to a certain extent been brought about by the question as to the rôle which the amebæ play in its causation. Heretofore it has not been possible to be certain in regard to this because of the failure to cultivate the parasite, but now that this is made a practicable procedure and the etiologic rôle of amebæ is established, the first essential to building up a rational therapeutics is fulfilled.

Formerly, owing to failure to cultivate amebas and, therefore, without definite knowledge of the distribution of pathogenic ones in Nature, rules for prevention have been formulated without specific data in regard to this particular disease, and the result has been a greater lack of uniformity and success in the use of prophylactic measures than in the treatment of the infection. Inefficacy on one hand, and unnecessary severity on the other, have most certainly been the result of this ignorance.

In Bulletin 18, Bureau Government Laboratories, some of the important questions relating to prevention and cure of amebiasis have been elucidated, and methods and lines of work opened which will undoubtedly furnish other important data. However, this work is not complete, and a full discussion of methods of prevention and treatment, according to our present knowledge, will probably necessitate changes in the near future regarding some questions which are as yet indefinite or unexplained. Therefore, this paper will deal with the more important and heretofore neglected points in prophylaxis and treatment, and an attempt will be made to utilize some of the experimental facts which have been demonstrated.

The complication amebic appendicitis is really a continuation of the disease from the cecum to the appendix, and for that reason, and because of its importance in considering therapeutic measures, it will also be briefly discussed.

Intestinal amebiasis (amebic dysentery) is the medical subject of the most universal interest in the Philippine Islands. It causes more than 50 per cent. of the invalidism of public servants; it must be reckoned with in the profit-and-loss accounts of business enterprise; and it enters into consideration in military movements. It numbers among its victims all ages, all classes and all races, being most prevalent in Manila among the unacclimated adult Americans.

Theoretically, at least, it is a preventable disease, but just how far the various theories are supposed to insure prevention are of practicable and necessary application while still allowing some of the comforts of life, is the problem to be solved for the successful prophylaxis against it. Heretofore the only recommendation, based on facts, which could be made, was that of the ideal prophylaxis, which, briefly expressed, is to take nothing into the gastrointestinal canal which has not been sterilized by heat.

Such a procedure, while efficient, is not always practicable, is always inconvenient, and as we learn more of the habitat and manner of life of the amebæ, we find that it is not necessary in every respect; however, it is so nearly so that all departures from it should be in the nature of specific exceptions. Previously, all such exceptions were due, in a sense, to speculation, and their variety is responsible for many cases of the disease. There are numerous Americans who have taken advantage of less stringent measures, and who have escaped the disease during four or five years' residence in Manila. Others, who have apparently followed similar recommendations, have fallen victims, and, finally, there are numbers of foreign residents in Manila to-day, who have been more than four years in the country, who have not contracted dysentery, and who have eaten and drunk without the slightest regard for the consequences.

This principle of natural immunity (used in its most inclusive sense) is very noticeable in this disease, but it depends on so many conditions, is often transient, and, finally, as it can not be determined by justifiable means, any conclusions based on observations such as are given above, must be unsatisfactory. However, with methods of cultivation of amebæ at our command, this problem of the simplest "technic of living" compatible with safety is a practicable one.

### PROPHYLAXIS.

To fully grasp the importance of preventive measures it must be remembered that amebic dysentery is endemic in the Philippine Islands, and amebæ which can not be differentiated from the infecting agent are easily isolated from a surprisingly great variety of substances.

Water furnishes a prolific source of the organisms, and the majority of cases of the disease can be traced to it, either directly or indirectly. Practically all the surface waters of the Philippine Islands contain the parasites in large numbers, and all the cisterns and wells which we have examined are even more richly supplied with these and other parasites. Rain water stored in cisterns is perhaps the most dangerous.

*Water.*—The city water supply of Manila contains large numbers of protozoa, and amebæ, which are not distinguishable from those found in the intestinal ulcers in dysentery, may be drawn from the tap water almost at any time, and cultures of some of these amebæ when ingested by monkeys produce dysentery in these animals. The danger from water has become quite generally recognized by the public, and honest effort to overcome the difficulty is made, but the methods looking to this end are very often ill advised.

First to be considered is the use of distilled water. Much of the so-called distilled water in this city is either not distilled at all, or it is stored in reservoirs which are not properly cared for, and consequently, amebæ and other parasites may be frequently cultivated from it. On the other hand, it often happens that a safe water is contaminated by handling after its receipt from a reputable source. It is taken into a vessel which has been washed in tap water, or, if this is not the case, is placed on ice in bottles which have had a similar treatment. In the last few weeks Mr. Clegg and I have cultivated amebæ from the water kept in bottles for drinking purposes from five different residences, and similar results have been obtained in cultures from the water coolers in public offices. Where water is boiled for drinking purposes, similar contaminations may result from handling, and filtering should never be relied on for preparing drinking water unless the filter and method of its use and care are thoroughly understood. The rather extensive practice of filtering water after it has been boiled is particularly pernicious. If filtration is desirable it should always be done first and the water boiled afterward.

The use of carbonated and other bottled waters, both imported and of home manufacture, is coming more and more into general use, and but for their expense would soon solve the problem for the better class of will occasionally become clogged, but very rarely so when judgment is used in its introduction. The weakest point of this tube is its extreme end, and if any obstruction occurs during its entrance with the current flowing (as it should be under low pressure), it is quickly observed by a lack of pulsation in the soft delivery tube (which should always be under control of the operator's fingers), or by watching the fall of fluid in the irrigating tank, and such trouble may be quickly corrected by withdrawing the tube very slightly and waiting a few seconds until the fluid, which should be allowed to escape in a pulsating manner from the delivery tube by alternating compression and relaxation, has removed the obstruction by dilatation of the bowel. If the tube opens both in the end and on the side, the means of detecting an occlusion are the same as with the other. However, on account of the two openings, when the fall of fluid indicates a stoppage, the tube already may have been folded. This trouble usually begins at the eye, and several feet of loop may have been introduced before both openings are closed and the flow is stopped. In this case a correction of the trouble necessitates a further withdrawal and the turning of a knuckle of an inch or more of tube in the ulcerated bowel. Finally, with the tube opening at the end, there is obviously much less danger of mechanical injury to any deep ulcers which may be present. The tube with an opening on the side alone is, of course, not to be considered.

A very good position for the patient during the administration of an enema, and one which is usually most convenient, is the Sims position, with the hips well elevated. When practicable, it is still better to have the foot of the bed raised from 12 to 18 inches. The knee-chest position on the same kind of a bed is sometimes particularly satisfactory, both because of the ease in passing the tube and the ability to retain the fluid. With the rectal tube and anus well lubricated with clean castile or other mild soap, or with soft white vaselin, the tube, freed from air, is introduced through the sphincter. After a slight rest for the spasm of the sphincter to subside, the flow may be turned on under low pressure (controlled by the fingers on the delivery tube), and the latter is then slowly introduced to a distance of from 40 cm. to 1 meter or more, depending on the character of the case, the location of the lesions, and the patient's tolerance for the fluid. After the tube has been introduced to the highest point which is necessary, the rate of flow may be increased, and the amount of fluid to be introduced is governed by the bowel capacity or the patient's ability to bear the pain—which in some cases is excruciating.

Patients will often be found who will take from 3 to 4 liters with no great discomfort, but in the majority about 2 liters will be all that can be borne, and in some, not over a liter is practicable. Naturally this variation in quantity depends on the difference in bowel capacity, on its irritability and on the patient's idiosyncrasy to pain. Women, as a rule, are more satisfactory patients in this respect than men.

Several other factors help in introducing a large quantity of fluid into the bowel, but they can not always be determined without experiment. Bowel spasm comes on in nearly all cases during the entrance of the fluid. In some instances increased pressure gives the best results, while in others a decrease in, or a temporary stopping of, the flow will be found most satisfactory. Often, allowing a patient to change position during the flow will give relief, and if this is done with caution there is no objection to it. Occasionally a bowel is so irritable as to preclude the giving of an enema of sufficient concentration and quantity. This difficulty may be greatly relieved by giving one of warm water or of salt solution containing ¼ or ½ gr. of morphin a half hour before the medicated enema is introduced.

The presence of gas in the bowel always increases the pain caused by the enema, and hence in those cases in which there is considerable fermentation or in which the bowel has a large accumulation of feces, it is often well to give a preliminary simple enema. This causes little or no pain, it cleanses the bowel, and in this way allows increased certainty of action of the medicine to follow. Their use gives such happy results in many cases, and their inconvenience is so small, that I have employed them very frequently as a routine measure, even where there were no special considerations to be met.

After a full enema has been administered, a change of position usually enables the patient to retain it longer, and in addition may insure its reaching all parts of the colon. If the sloping bed has been used it will usually suffice for the patient to turn on the back with legs flexed, or on the right side, and if further elevation is desired it can best be accomplished by still further raising the foot of the couch. In every case, all practical methods should be applied to give the largest quantity of fluid which can be administered and retained, for, to secure satisfactory results, the diseased part of the bowel, which in the majority of cases is clinically the entire colon, must be distended and the fluid retained for from five to fifteen minutes.

Retention of the enema for less than five minutes hardly allows it to develop its full parasiticidal action, and when the fluid is held for more than fifteen minutes the result may be unnecessary inconveniences from the absorption of quinin. The latter is a very troublesome condition in many cases.

The temperature of the solution not infrequently makes a material difference in its tolerance. It has been shown that the amebæ, when they are in the moving stage, are most susceptible to the action of antiparasiticidal agents. This condition is interfered with by either cold or heat. For this reason cold solutions would appear at a glance, at least theoretically, contraindicated either as a vehicle for the curative medicine or as sedative applications immediately preceding the medicinal ones.

There is, however, another factor to be considered here, for while the cold increases the parasite's resistance to medicinal agents, it also, by causing it to encyst, removes its power of independent motion and its ability to cling to its surroundings, and therefore it may be much easier to flush from the bowel.[2]

Cold solutions, while quite disagreeable during their introduction, later often have a soothing influence on the mucous membrane, and, as a consequence, for some time, when other remedies fail to create tolerance in the bowel, I often use an ice water injection one-half hour before the quinin enema, and sometimes administer the quinin itself in cold solution.

After Tuttle's article more attention has been paid to this point. However, it must be remembered that the lowered temperature produced by cold injections in the bowel is only temporary, and that those amebæ which are not flushed out during this time are not destroyed, and their progress is but slightly delayed.

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[2] Tuttle, in The Journal, Oct. 8, 1904, p. 1022, has recently reported good results in the treatment of amebic dysentery by the use of simple ice water enemas given frequently, and his success may be explained by mechanical removal of the parasite.

In order to secure whatever advantage might be attributed to the cold and at the same time to introduce the antiparasiticidal agent, a few old cases which were very resistant to treatment were placed on ice-cold solutions of quinin instead of the usual ones at the body temperature. This method has been used with about 20 persons in private practice, mostly among those who have not reacted well to the usual treatment. The results so far, while encouraging, have not been universally satisfactory.

Such ice-cold quinin enemas are often quite painful when they are first introduced, but this condition is only a transient one and is frequently followed by a sense of comfort rarely experienced when the solutions have a higher temperature. There is some local reaction, of course, but I have never seen any dangerous manifestations. It is much easier to reach the upper colon with such an enema, and this fact alone makes it useful in many cases.

A considerable variety of drugs have from time to time been recommended, but up to the present time the various salts of quinin have given the most satisfactory results and have been the most constantly and extensively used since their introduction by Lösch, in 1875.

If enemas of this drug are properly prepared and administered, the outcome in the majority of cases of moderate duration, is very satisfactory, and many of the disappointing results following its use are not the fault of the principle, but the result of routine and the failure to use it under the most favorable conditions.

There is apparently but little choice between the various salts of quinin, but, to be most serviceable, the solution should be an acid one. The strength used should vary from 1-1500 to 1-750, depending somewhat on the idiosyncrasies of the patient. A stronger solution than 1-750 is not required to destroy any amebæ which are subject to its action, and besides it is more irritating, and when retained produces unnecessary systemic effects from the absorption of the drug. A weaker one than 1-1500 does not assure parasiticidal action in a reasonable length of time, and is therefore not to be used.[3]

Accepting these statements as proved, their intelligent application may be of service in the local treatment of amebic dysentery, particularly in the selection of a solvent for use in the application of quinin or whatever other antiparasitic substances used in enemas.

Not infrequently one of the disagreeable features of the local treatment, whatever the medicine, is the nausea which follows and the consequent interference with digestion and nutrition. One would not think, therefore, of employing a sodium chlorid solution as a vehicle for quinin in such cases, but on the other hand, in certain well nourished patients with decided intolerance for enemas, this condition may be taken advantage of, and, if necessary, a sodium chlorid solution enema containing a quarter of a grain of morphin or one-tenth of a grain of cocain may be administered one or two hours before giving the quinin.

Recent researches have tended to show that the presence of living bacteria are necessary for the propagation of amebæ, and if this symbiosis is in reality a necessity to the life of the amebæ in the intestine, we have an increased incentive to use bactericidal local medication. Bacteria are quite generally considered as having pathologic significance in this disease, partly, no doubt, as a result of their own action, and in addition, the symbiosis referred to may result in metabolic changes which may vary with different bacteria and influence the pathologic action both of themselves and of the parasites. Whatever the manner of their action, the clinical importance of limiting the number of intestinal bacteria in this infection is fully recognized. Various kinds of antiseptic irrigations, looking to this end, have been used and recommended, but in satisfactory concentration they have usually proved either dangerous or impracticable.[4]

The bactericidal properties of acetozone are well known, and its action in acid solution on amebæ has been pointed out in Bulletin 18, Bureau of Government Laboratories. I have never used it alone in treatment, but in acid solution of 1-5000 to 1-2000 in combination with quinin 1-1500 to 1-750, or when used alternately with the quinin enemas, it often gives more satisfactory results than does quinin alone in cases in which it is tolerated.

The inconvenience in securing the solution for private practice, and its irritating effects in the colon, are the principal objections to it, and the latter is partially overcome when it is used in the cold enemas described above.

Alphozone used in the same manner as acetozone has recently given some encouraging results, and in some very chronic cases the happiest results sometimes follow the occasional substitution of an enema of 1-10 to 1-2 solution of hydrogen peroxid for the quinin one. In a like manner an occasional reaction brought about by an injection of a solution of silver nitrate does good, but the routine use of this drug is not usually satisfactory.

As to the number of enemas to be used, the tendency is to overdo. One enema properly administered is of more value than several given without consideration of the conditions. In the vast majority of cases, from one to three in the twenty-four hours will be found to be the most satisfactory, and, fortunately, this number fulfills the rational as well as the practical requirements.

Some of the most aggravated cases are those in which a catarrh of the lower bowel has been established by the previous use of enemas too frequently given, of too great a concentration, and which have been introduced into the lower colon in quantities of one liter or less. In not a few cases, owing to the physiologic action of absorbed quinin or from other causes, it will be found impracticable to give more than one enema daily.

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[3] The fluid used as a vehicle for the application of the quinin also deserves some thought. In 1884 Nothnagel showed that when sodium chlorid was placed on the peritoneal coat of the living intestine active antiperistalsis resulted. In 1894, Grutzner injected into the rectum physiologic salt solution in which was suspended finely divided hair, charcoal and starch. After six hours he demonstrated these substances in the small intestine and stomach. Hemmeter (1902) confirmed these observations, proving that active antiperistalsis followed the introduction of substances suspended in salt solution into the rectum of human subjects, a cat and a white rat. He further showed that these results were less certain or not to be obtained when solutions of potassium chlorid or hydrochloric acid were used. Fasting favored this antiperistaltic action and both diarrhea and constipation delayed it; the normal bowel gave the best results. Peristalsis was not arrested by this procedure, but continued to control substances well within the lumen of the bowel, while the antiperistaltic movements influenced only substances near the walls of the organ.

[4] In 1902, Freer called attention to the results obtained by Strong in the experimental treatment of eleven cases of amebic dysentery with acetozone. The drug was given both internally and by enema. In these cases the results were encouraging. Of the eleven cases treated, two died, one from a complication of a liver abscess. The other nine at the time of the report were without any symptom of the disease.

Irritability of the anus and rectum may usually be avoided, but sometimes this condition occurs and it may prove very annoying. After each treatment the external parts should be washed with soap and water and bathed in some antiseptic solution, and when the irritation becomes excessive, a cocain suppository administered just previous to the enema will afford relief, but where possible this is to be avoided, for, in addition to reasons which are obvious, it may interfere with the action of the sphincter to such an extent as to allow the escape of fluid during the operation. Flushing the lower bowel with cold water or some mild soothing lotion after each treatment gives the most satisfactory results in these cases.

In many of the textbooks, caution regarding the maximum pressure to be used in the administration of enemas is enjoined in those cases showing advanced ulceration. Theoretically this is good advice, but in actual practice, in the first place, it is impossible to determine the extent of intestinal ulceration in amebic dysentery, and secondly, agreeing with Professor Osler, I must say that the danger from this source is small indeed—so much so that it is doubtful if it deserves consideration in the treatment of a disease where distension of the bowel is so necessary. In over five years observation in hospital wards, in private practice, and in the morgue, I have never seen evidence of such an accident.

Finally, I wish to emphasize that no recommended routine treatment will be found to be satisfactory in all cases of intestinal amebiasis. Each one requires careful study, and variations in the treatment should be made to suit special conditions, and to efficiently do this the physician should either himself administer or be present at the administration of at least the first few enemas given to every patient under his care.

## APPENDICEAL AMEBIASIS.

Involvement of the appendix in amebic dysentery, as previously stated, is really a direct continuation of the diseased process from the intestines and may, therefore, be appropriately considered here.

*Pathology.*—In 100 necropsies on this disease the appendix contained lesions in fourteen. In six, the process was an active amebic infection, four times, in otherwise apparently healthy appendices, and in one the amebic process was secondary to chronic changes from other causes. One was an old chronic appendicitis (non-amebic) associated with a pericecal abscess (amebic), and seven others were those showing chronic lesions without amebic infection. Four of these seven, however, showed evidence of some acute inflammatory reaction, probably the result of close contact with the amebic process going on in the cecum.

In four of the six amebic cases death resulted from general peritonitis following perforation, three times in the cecum and once in the descending colon. This entire series was in American soldiers, and necropsies were performed by Dr. Strong and myself mostly during the year 1900. They were almost entirely chronic cases, which gave histories of months of diarrhea, and were in the last stages of the disease when received at the first reserve hospital.

In a more recent study of 50 fatal cases and in many clinical ones, particular attention has been directed to the involvement of the appendix as a complication. However, the statistical results in the fatal cases have in the main been confirmatory of those in the first series.

In every instance where the appendix showed amebic ulceration, this has been as a direct continuation of and secondary to a similar process in the cecum. Peritonitis following perforation of a gangrenous amebic ulcer in the appendix occurred in one case, but the cecum was also gangrenous. Without lesions, amebæ have never been found in the appendix.

*Classification.*—With these brief data we are better prepared to discuss the clinical side of the problem, which particularly concerns us in this paper. Where the records are complete, all cases which have shown lesions of the appendix postmortem have also given a history of clinical symptoms during life which indicated involvement of that organ. However, on the other hand, very few of the cases which have manifested clinical symptoms of appendicitis during life have shown lesions of this organ postmortem.

The highest mortality in intestinal amebiasis occurs where the cecum is involved, and as appendicitis is found but rarely, if ever, in any other class, it will be seen that postmortem examinations indicate a much higher percentage with appendicitis than actually exists when all classes of cases are considered. The very great majority of those suffering with amebiasis will not have symptoms of appendicitis during life, and this organ will be found healthy at necropsy.

From clinical and postmortem observations we learn that cases of amebic dysentery with symptoms of appendicitis during life may be divided into three general classes:

1. Those in which at operation or necropsy the appendix is not found to be diseased.
2. Those in which at operation or necropsy a chronic appendicitis, from other causes and without amebic infection, is found.
3. Those in which at operation or necropsy an amebic infection of the appendix is present.

Clinically, examples of the first class are very frequently met with, and sometimes at autopsy no lesions are found which would account for the symptoms during life. However, in one of my cases there was a pericecal abscess due to a perforation, and in others there was extensive ulceration of the cecum, both with and without adhesions to the omentum and, other structures, which accounted for the symptoms during life.

The second class is not infrequnetly encountered during life, and in the fatal cases there is often congestion, injection of the vessels and other inflammatory phenomena. due to close relation to the inflamed bowel, but without an amebic process or the presence of the parasites in the appendix.

The third class is the last in order of frequency to be observed in clinical practice, but is more frequent (seven times in the 150 necropsies) in the necropsy records, because, practically, all such cases are fatal.

As previously stated, these seven infections, with one exception, occurred in apparently otherwise healthy appendices, but it is important to remember here that in three of these the cecum was also gangrenous, and death resulted from peritonitis following perforation, twice in the cecum and once in the appendix. In the remaining case the amebic infection was secondary to an appendicitis from other causes.

These statistics show that the majority of appendiceal infections are associated with the very severest involvement of the cecum, where death usually results from a perforation in or near the deeply ulcerated and often gangrenous organ, the type of case corresponding so closely to similar ones without infection of the appendix that a differentiation during life is often impossible. Sometimes when the infection is less intense in the cecum, and the lesions in the appendix more important, the clinical picture of appendicitis is more definite and may with care be diagnosed during life.

The importance of being able to distinguish during life the three classes of cases discussed, from appendicitis due to other causes, as well as to differentiate them from each other is obvious.

As a rule, no great difficulty, at least in the tropics, will be encountered in differentiating the amebic processes located in or about the cecum from appendicitis due to other causes. In the former there is generally a history of dysentery or diarrhea, and a microscopic examination of the stools will usually show amebæ, while in the latter a history of previous attacks may often be secured. The general symptoms in the amebic infection are usually less severe, and differ to a certain extent from those of the latter. Fever is more commonly slight or even absent; nausea is less frequent (unless the patient is taking enemas), and vomiting is rare. Rigidity of the rectus muscle is nearly always less decided, or even absent, and while pain on deep pressure is quite constant, it is rarely of the very acute type so often seen in other forms of appendicitis. A tumor mass, as in other forms of appendicitis, is usually present, but it more often has a soft boggy character in the region of the cecum, and is rarely circumscribed, definite and low in the right iliac fossa, as in other types of appendicitis. Sometimes, however, where there is a definite appendicitis due to amebæ, it may be ushered in as a sharp attack of acute pain, with some muscular rigidity, perhaps a certain degree of fever, an increase in the number of bowel movements, and a leucocytosis of from 10,000 to 20,000.

A differentiation of the various types of amebic infections which give the general symptoms of appendicitis during life is a difficult task, and it is even impossible in many instances to say that the appendix is at all involved.

*Symptomatology.*—Where the cecum, whether alone or with the appendix, is the seat of dysenteric lesions, pain in the region occupied by these organs is quite a constant symptom, and it may vary from a dull aching one to that of the most acute radiating type. The acuteness of the pain depends, to some extent no doubt, on the character of the lesions, the stage of the disease, and the general condition of the patient. In well-nourished individuals moderate ulceration in or just below the cecum may cause considerably greater pain than similar lesions in chronic emaciated cases. Some of the most deceptive clinical pictures are encountered when the omentum becomes adherent around the cecum, ascending colon, abdominal wall and liver. When such adhesions form in the region of the appendix, considerable thickening occurs, and palpation, besides confirming deceptive conclusions, is to be performed with care on account of the danger of rupture.

In the second class of cases, when a chronic adhesive appendicitis has been aggravated by close relation to the diseased cecum, the patient's history will usually show similar attacks antedating the dysentery. The symptoms usually come on somewhat slowly, are rarely urgent, and are frequently relieved by a saline cathartic.

We have already seen that in the third class the lesions of the appendix are but a continuation of similar lesions in the cecum, and in the rare instances where they are not, the clinical picture is the same as that of an appendicitis from other causes.

*Treatment.*—The majority of cases of amebic dysentery give no symptoms indicating involvement of the appendix during life; no amebæ and no lesions are found in this organ postmortem, and, therefore, treatment directed especially to the appendix is worse than useless.

When symptoms suggesting appendicitis arise during the course of the disease, the medical treatment is that which is applicable to appendicitis from other causes, plus high large quinin enemas. Saline cathartics are particularly useful if the patient is in a condition to justify their administration. Thirty grains of Rochelle salt will often relieve, more or less permanently, the symptoms of appendicitis from this cause.

In the early stages of amebic dysentery in the majority of cases, the appendix could be removed without immediate bad results, but the probable future of the patient must be considered, and this is not best conserved by performing an operation which, for a greater or lesser time, necessitates a discontinuance of rational treatment of the disease, and which uses up more or less of the strength and energy so necessary for its successful therapeutics. Such precipitate surgery has, in the past, undoubtedly determined the fatal result in some instances.

## CONCLUSIONS.

We have shown what a variety of pathologic conditions may produce symptoms of appendicitis in intestinal amebiasis, and how difficult and often impossible it is to differentiate these during life. They are produced most frequently by lesions in the cecum without involvement of the appendix where surgical intervention is contraindicated.

Somewhat less often such symptoms follow aggravation of an existing chronic appendicitis due to other causes, by the continuation of inflammation from the cecum, and nearly always without amebic involvement of the appendix. Operation is rarely found to be necessary, provided medical treatment of the disease is rationally administered.

Finally, in a small number of cases, such symptoms are due to amebic involvement of the appendix as a continuation of a similar process from the cecum and early operation is indicated.

In a minority of these appendectomy may be satisfactorily performed, but more often the operator will find a gangrenous cecum and increase his mortality rates.

In the 150 necropsies there were two cases where operation would probably have saved or prolonged life. One of these was amebic appendicitis without extensive ulceration in the cecum, and the other a pericecal amebic abscess.

A surgeon should be called in consultation in all cases of intestinal amebiasis with symptoms suggesting appendicitis, and questions of operation decided only after careful consideration.

In closing, I wish to thank Dr. P. C. Freer, superintendent of the Government Laboratories, for his assistance in editing the manuscript.

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**Electrotherapy for Affections of Optic Nerve.**—Menn writes from Breslau to the *Ztft. f. diet. und physikalische Therapie*, viii, No. 8, that he has obtained fine functional results from application of electricity to affections of the optic nerve. He used stronger currents and made longer applications than those hitherto currently employed, and attributes his success to these more vigorous measures.

# DISSEMINATION OF STREPTOCOCCI THROUGH INVISIBLE SPUTUM.

## IN RELATION TO SCARLET FEVER AND SEPSIS.

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### INTRODUCTION.

Since the completion of this investigation an article has appeared in the *Archiv für klinische Chirurgie*, by Mendes de Leon, describing experiments conducted along the same lines as my own, and having practically the same results. Dr. de Leon calls attention to the work done in Flügge's laboratory which proved the importance of droplets of sputum in the dissemination of tuberculous infection, and comments on the fact that the sputum as a source of infection has apparently been overlooked by surgeons. He instituted experiments similar to those of Flügge, but modified so as to reproduce the conditions of the operating room, and succeeded in proving that the mouth of the operating surgeon is a fruitful source of streptococcal infection. During an ordinary operation, not performed before a class, a surgeon speaks from 150 to 500 words. Plates laid on the table before a number of surgeons while they spoke the above number of words were found to contain about 75 colonies, the larger number of which were streptococci; the colonies of diplococci, staphylococci, sarcinæ following in this order of frequency. Tested on rabbits and on guinea-pigs, five out of ten of the strains of streptococci proved virulent, six out of ten of the diplococci and two out of three staphylococci. Antiseptic mouth washes were found to be of no value; the number of colonies on the plates was slightly diminished, but the proportion of streptococci increased, for the effect of the wash was to increase the amount of thin watery saliva, and it is this kind of saliva which seems to play the chief part in the spread of streptococci.

Dr. de Leon recommends a mouth guard of special construction, which, on test, was found to hold back almost completely the droplets of sputum.

It will be found that my experiments add little that is new to those of Dr. de Leon. They will serve, however, to confirm his statement as to the dissemination of streptococci by the sputum expelled in talking, and also to show that forcibly expelled breath, even in the [illegible]bsence of speech, is a source of infection.

### SCARLET FEVER.

These experiments were undertaken primarily in con[illegible]ction with scarlet fever. In the Memorial Institute [illegible] Infectious Diseases one or two occurrences had sug[illegible] the possibility that the streptococcus might pass [illegible]ne patient to another, and that a scarlet-fever [illegible] *with severe streptococcal* complications might [illegible] source of danger to the uncomplicated cases [illegible]e ward.

[illegible] that the streptococcus is the causative agent [illegible]er is finding daily fewer supporters and [illegible] abandoned entirely, yet the importance [illegible] as the cause of most of the complica[illegible] fever has suffered no diminution. [illegible]tion is responsible for most of the [illegible]ic angina, for the otitis media and [illegible]itis and meningitis, for the puru[illegible]unctivitis, for the suppurating [illegible]itis, many of the cases of bronchopneumonia, and probably for all cases of true nephritis, while many deaths in the course of this disease are deaths from sepsis and not from scarlet fever proper. Rumpl, indeed, believes that in the majority of cases this complication is more important than the disease, and that, from the fourth day on, the symptoms caused by the streptococcus usually predominate and may completely mask the scarlet fever proper.

Recent bacteriologic studies in scarlet fever show that the streptococcus is present in the large majority of cases. It was found in 40 out of 41 throats (Weaver), 4 being pure cultures. It was found in pure culture in 38.8 per cent. of cases of pseudomembranous pharyngitis (v. Ranke). Babes found it in the internal organs of 17 fatal cases, and Baginsky and Sommerfeld found it in the blood and internal organs of 82 fatal cases.[1] In many instances it is apparently of a low virulence, in others it seems to be non-virulent, for scarlet fever may run its course without any streptococcal complications, even when the streptococcus is present on the tonsils. The appearance of such complications, therefore, must mean invasion not only by the streptococcus, but by a virulent strain. It is a common laboratory procedure to change a non-virulent into a virulent strain or to heighten the virulence for the lower animals. Sometimes it can be effected simply by transplantation to a more favorable nutrient medium; e. g., blood serum or ascites fluid, or in other cases it is done by passing the germ successively through susceptible animals. In this way an enormous increase of virulence can be attained. Experiments in heightening virulence for human beings are, of course, out of the question, yet there seems no reason to doubt that the same thing may be true of them also, and that a given organism, only slightly virulent for man, may have its virulence raised by similar methods; e. g., by changing its habitat from a normal pharynx to one altered by catarrhal inflammation, or by passing successively from patient to patient. We may imagine a streptococcus of low virulence in the throat of a scarlet-fever patient being disseminated into the air of a hospital ward and, when inhaled by a second patient, increasing in virulence and setting up a necrotic pharyngitis in its second victim, a general sepsis in the third, and so on until it reaches the point when it is capable of causing the fulminating type of sepsis.

In an epidemic of scarlet fever it is sometimes noted that while many of the cases are mild, all the children in a certain family are taken with a malignant, fatal form of the disease. Usually we explain such occurrences as instances of a family predisposition to or unusually low resistance to the scarlatinal infection. Possibly, however, such cases may be due to successive infection with an increasingly virulent strain of streptococcus.

That cases of scarlet fever with septic complications may be a source of danger to others is no new idea. In the hospital of the Pasteur Institute in Paris all scarlet-fever patients are kept strictly isolated in separate rooms up to the period of convalescence. I was told when visiting this institution that the result had been a very low average of cases with complications and sequelæ. The same statement is made by R. E. Lauder, medical superintendent of the Borough and Port Fever Hospital, Southampton, England, who not only separates the acute cases from the convalescents, but isolates all those with discharges from nose, ears or eyes, and all with swollen tonsils or lymphatic glands. As a result he claims a decided diminution in the number of patients with such complications.

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[1] A full review of the literature of this subject is given in an article by Ludvig Hektoen, "Streptococcemia," THE JOURNAL A. M. A., March 14, 1903.

At the Memorial Institute for Infectious Diseases, Chicago, several occurrences have pointed to the transmission of virulent streptococci from scarlet-fever patients to normal persons through the respiratory tract. One of the staff has twice contracted severe purulent rhinitis and pharyngitis when in attendance on cases of scarlet fever with unusually extensive streptococcal complications. Another developed a severe tonsillitis with chills and fever the first time he visited the scarlet-fever ward, and streptococci were found in his throat and blood. Still another developed a streptococcal tonsillitis after his first visit to the ward, and again after performing an autopsy on the body of a child dying of scarlatinal sepsis. In this hospital, as in others, it has been observed that the nurses are apt to have sore throat of varying severity during the first days of their service.

During April and May, 1904, an effort was made to prove whether or not scarlet-fever patients actually disseminate streptococci into the surrounding air. The method employed was the following: Sterile Petri dishes were filled with rabbit's blood agar (one part of defibrinated rabbit's blood to eight parts of glucose-peptone agar), and were used to catch the invisible droplets of sputum expelled from the mouths of scarlet-fever patients when coughing or crying, or when breathing heavily with the mouth open. Fifty cases were examined from the Memorial Institute, from the Cook County Hospital and from the Scarlet Fever Hospital of the New York Department of Health. At the same time that the plates were collected, cultures on glucose agar were made from the tonsils and examined for the presence of the streptococcus.

The method does not give very uniform results. It is impossible to regulate the amount of sputum which will reach the plate, for a vigorous cough may not produce as many colonies as a more feeble one, and crying may not produce as many as simple breathing, the variations depending on the dryness of the mouth and the thickness of the sputum. It was found impossible to make any absolute rule as to the time of exposure of the plates, or the distance at which they were held. For the majority of cases two plates were used; one held at from 12 to 15 centimeters from the mouth, the other at from 18 to 24. The patient was asked to cough twice while each plate was so held. If the cough was feeble the plate was held nearer, if very vigorous, farther away. In the case of crying babies the plates were held for one-half minute in front of the mouth. Some of the patients were too ill or too young to cough, and, then the plate was simply held before the mouth for almost a minute, provided the patient was breathing rather forcibly and with the mouth open. In spite of every effort to attain uniform results the colonies on the plates varied in number from nothing to 175.

On blood agar the colonies of streptococcus are usually easily distinguishable, for the hemolytic action of this organism on rabbit's corpuscles results in the formation around the colony of a ring or halo which is either clear or greenish, according to the hemolytic power of the individual streptococcus. The halo around the pneumococcus colonies is more decidedly green than that around the streptococcus (Schottmüller), and the staphylococcus colonies, which also have a clear halo, can usually be distinguished easily by their greater size. In all cases of doubt the colonies were transferred to bouillon and examined the next day.

As a result of the study of these 50 cases, it was found that streptococci were present on the tonsils of 47, as shown by the cultures from swabs. It was expelled by coughing or crying in 20 out of the 34 patients who could either cough or cry, and by expiration in 13 out of the 16 patients who were too ill to be made to do so. A greater proportion of positive cases were obtained from the patients over 10 years of age than from those under; the feeble attempts at coughing made by the younger children and the feeble expiration often resulted in plates with very few colonies. Seventeen of the 23 cases over 10 years of age had streptococci on their plates, only 16 of the 27 under this age.

The proportion of streptococcus colonies to those of other organisms varied from five out of nine colonies to one out of ninety-eight. The proportion also varied in the two plates taken from the same individual. Thus in one case the first plate had 23 colonies, with no streptococci; the second—held farther away—had 43, of which 12 were streptococcus colonies. The plates collected from the 16 patients who were too ill or too young to cough contained colonies ranging from 3 up to 100. There were streptococcus colonies in 13 of those 16 cases; in 7 of the 13 this organism formed over 25 per cent. of all the colonies present.

These 50 cases represented almost all varieties of scarlet fever, and were taken during the first three weeks of the disease. Fifteen had severe pharyngitis, but the number of streptococci expelled by these cases did not average higher than the number expelled by the others.

These experiments prove that living streptococci are expelled into the air by scarlet-fever patients, and this not exceptionally, but in as much as 66 per cent. of all cases. In all probability some are non-virulent—those from the cases in which the angina is mild in character. In others there is reason to believe that they are moderately virulent, and in some the virulence may be of a very high grade. Animal experiments to determine the degree of virulence of a given streptococcus are notoriously unsatisfactory, as an organism which has been rendered highly virulent for one species of animal may be only slightly so for another, and an organism isolated from a case of scarlatinal septicemia may not prove at all virulent for the lower animals. We must, therefore, be satisfied with probabilities, but these are certainly strong enough for us to proceed on the assumption that a strain of streptococcus which is virulent for one human being is virulent for others also. Since, then, it has been shown that the streptococcus is expelled into the air surrounding the patient, we are justified in urging that those patients who are suffering from severe streptococcal complications should be isolated from uncomplicated patients, or that in hospitals where isolation is impossible a gauze mask should be used to cover the patient's mouth.

### SURGICAL SEPSIS.

The theory of the "unity of the streptococcus" has gained ground of late years, although Schottmüller still distinguishes two species on the ground of cultural variations and different degrees of virulence. Schottmüller himself, however, states that the streptococci which cause erysipelas, phlegmon, septicemia, puerperal sepsis, the complications of scarlet fever, diphtheria, etc., are indistinguishable from each other. The same species

**Multiplicity of Agglutinogens.**

one would yield an agglutinating serum of equal power for both cells; this, however, is not the result obtained. On the other hand, the agglutinins of two different organisms may coincide to a certain degree, as will be shown under the subject of "group agglutination." Certain experiments go to show that the agglutinin of even a single micro-organism is not a uniform substance. One portion is heat susceptible, being destroyed at 62 C., while another portion is said to resist a temperature of 165 C. Such technical questions continue to be investigated.

**Flagellar and Somatic Agglutinogens.**

*Agglutinogens* are said to pass through semipermeable membranes, while agglutinins do not. Smith and Reagh distinguish two kinds of agglutinogen in those bacteria which possess flagellæ, one peculiar to the cell body, and the other to the flagellæ.

Agglutinin may be precipitated completely from a serum by the sulphates of magnesium or ammonium, when the salts are used in *proper concentrations*. Because of their reaction to such precipitating agents, agglutinins *are thought to belong to the globulin fraction of serums*; whether globulins or not, they are precipitated with them.

**Properties of Agglutinins.**

Agglutinins resist digestion with pepsin and papayotin, but are destroyed after prolonged exposure to the action of trypsin. An agglutinating serum which is dried and kept free from moisture and the action of light, retains its power unaltered. Similar to agglutinogen, agglutinin is thought not to be a uniform substance, one portion being susceptible to heat, *and another portion resistant; these have been called alpha and* beta agglutinins.

**Structure of Agglutinogen.**

It is convenient to speak of the reaction between agglutinin and agglutinogen, and of the process in the body through which agglutinins are formed, in terms of the side-chain theory. Accordingly, if that constituent of micro-organisms which we have termed *agglutinogen* is the substance which stimulates the tissues to form agglutinin, we must assign to it a haptophorous group through which it may unite with the receptors of the tissue cell. This haptophore comes into play again in the union between agglutinogen and agglutinin, which precedes agglutination. There is no reason for assigning to agglutinogen any other structure than this single haptophore; it is a passive body, similar to antitoxin, and has no other function than that of uniting either with cell or with agglutinin.

**Structure of Agglutinin.**

Agglutinin also must have a haptophorous or binding group, inasmuch as it enters into combination with agglutinogen. In addition to this binding group, experiments have shown that agglutinin possesses a toxic constituent, which is analogous to the toxophorous group of the toxin molecule; in this case, however, it is called a zymotoxic or zymophorous group because of its supposed ferment-like activity (Fig. 6).

**Zymotoxic Group.**

The analogy with toxins goes further, in that the zymotoxic group of agglutinin may degenerate or may be destroyed, leaving the haptophorous group with its binding power for agglutinogen practically unaltered; these are *agglutinoids*, just as toxins when changed in a similar way are called toxoids.

**Agglutinoids.**

A serum which is rich in agglutinin may be changed into one rich in agglutinoid by exposure to a temperature of from 60 to 75 C., and by the action of acids or alkalies; *the change also takes* place spontaneously in the course of time, when the agglutinin is in solution.

Agglutinoids are detected by methods analogous to those used in the *recognition of toxoids*. If toxoids unite with all the antitoxin in a solution, there naturally remains no antitoxin to unite with true toxin which may be added subsequently. Similarly, if all the agglutinogen in a mass of micro-organisms has united with inactive agglutinoid, agglutinin which is added subsequently would have no point of attack and the reaction of agglutination would not occur. So we may say that when bacteria are treated *with a serum*, which at one time was agglutinating, and the bacteria are thereby made insusceptible to the action of a fresh agglutinating serum, the former serum contained agglutinoids.

**Proagglutinoids.**

Sometimes it is found that even a fresh serum, when concentrated, will cause less *agglutination* than when diluted. This has been referred to the presence of agglutinoids which have a stronger affinity for agglutinogen than has the agglutinin; when of this character they are called proagglutinoids, and accordingly are analogous to the protoxoids mentioned earlier. As the serum is diluted the concentration of the proagglutinoids becomes less, and at a time when they are so dilute that they have no influence on the reaction, the agglutinins are still present in such strength that *agglutination* is brought about.

**Two Stages in Agglutination.**

The presence of some salt is necessary for the occurrence of agglutination. Bordet found that if the salts were removed from the serum and from the suspension of bacteria by dialysis, and the two were then *mixed, agglutination did not occur; if a small* trace of sodium chlorid was added the reaction *took place promptly.* Furthermore, if the serum was completely removed from the bacteria by repeatedly washing them in distilled water, it was found that the microbes had absorbed the agglutinin, but the latter remained inactive until the salt was added.

This experiment not only suggests a haptophorous as distinguished from a zymotoxic group, but also indicates that *agglutination* consists of two phases. The first phase represents the union of agglutinin with the bacteria, while in the second *are included the other changes necessary for the clumping* of the organisms; the second is supposed to represent the activity of the zymotoxic group. The action of the salt, just cited, is unknown. It has been suggested that it may favor osmosis between the bacteria and the surrounding fluid, or that it may in some way affect their adhesiveness and the attraction existing between individual cells.

The properties of serums which are of interest in immunity are now being studied by chemists, notably by Arrhenius, the celebrated Swedish chemist. The study of mass action, of chemical equilibrium between agglutinin and agglutinogen, for example, and of the dissociation of the compound after it has once formed, are subjects under investigation, but which are too technical to be entered on here.

**Group Agglutination.**

"Group agglutination" has been referred to. By this is meant the ability of some antimicrobic serum to agglutinate certain other organisms which morphologically, biologically and often pathogenetically, are closely related to the homologous bacterium. In these instances, the agglutinating power is greatest for the homologous organism, and the degree to which the heterologous organisms are agglutinated is to some extent an index of the proximity of the relationship of the latter to the former. Antityphoid serum has been found to agglutinate the psittacosis, colon, paracolon, and paratyphoid bacilli and *Bacillus enteritidis*, but the action is never so strong as on the typhoid bacillus itself. We are to *understand that this power* to agglutinate related organisms represents something more than the normal property of the serum; there has been an actual increase in agglutinin for the heterologous bacteria as a result of infection or immunization by the specific organism.

Having typhoid fever in mind, this is a rule which works both ways. Infections with the colon bacillus and related organisms, *and sometimes with organisms not closely related*, as the staphylococcus, may cause an increase in agglutinin for the typhoid bacillus. The importance of this fact is evident, and it may explain the positive Gruber-Widal reaction sometimes found in acute tuberculosis, epidemic cerebrospinal meningitis, etc.

**Chief Agglutinin and Co-agglutinins.**

Inasmuch as the highest agglutinating power is always manifest against the homologous organism, this is spoken of as the chief agglutinin (*Hauptagglutinin*) of the serum, while the weaker agglutinins for other organisms are called partial or adventitious agglutinins, or coagglutinins (*Mitagglutinin*).

**Specificity.**

The phenomenon of group agglutination would seem to violate the specificity which we are in the habit of attributing to the reactions of immunity; yet an adequate explanation has been offered for the occurrence. It is probable that the protoplasms of all cells have certain constituents in common, and that the closer the relationship between two different cells the greater is the similarity of their constituents. In view of this probability, Durham has used the following illustration in the explanation of group agglutination: The typhoid bacillus contains certain constituents, agglutinogenic molecules, which one may designate as a, b, c, d, and e; these differ among themselves in unknown respects, but each is able to stimulate to the formation of a corresponding agglutinin. The serum, then, would have the agglutinin molecules A, B, C, D and E, also differing among themselves, but having at least one property in common—that of causing agglutination of the typhoid bacillus by uniting with their corresponding agglutinogenic molecules. In this sense nothing could be more specific. The *Bacillus enteritidis*, closely related to the typhoid organism, may possess the agglutinogenic molecules c, d, e, f, g, and h, and following the principle expressed above would stimulate, in the body, to the formation of the agglutinin molecules C, D, E, F, G and H. Inasmuch as the agglutinogens c, d and e are common to the two bacilli, the agglutinins C, D and E would affect either of the two organisms. The typhoid serum, however, would contain five agglutinins for the typhoid bacillus and only three for the *Bacillus enteritidis*, consequently the action would be stronger against the typhoid bacillus. The same line of reasoning would explain the increased agglutinating power of an anticolon serum for the typhoid bacillus.

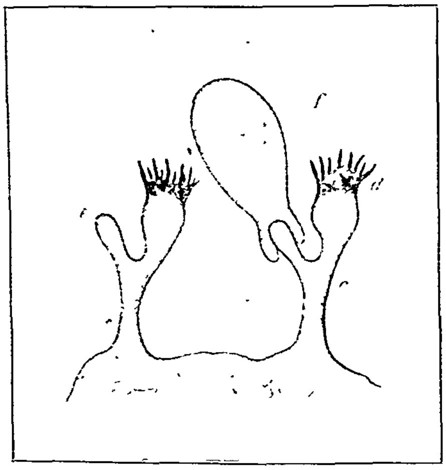

Fig. 6.—Graphic representation of receptors of the second order and of some substance uniting with one of them. *c*, cell receptor of the second order; *d*, toxophore or zymophore group of the receptor; *c*, haptophore of the receptor; *f*, food substance or product of bacterial disintegration uniting with the haptophore of the cell receptor. From Ehrlich's "Schlussbetrachtungen," Nothnagel's System of Medicine, vol. viii.

A further elaboration of this principle may be made in a case in which two different strains of the same organism (typhoid bacillus) have somewhat different agglutinogenic molecules; consequently the homologous immune serums for these organisms might not coincide in their agglutinating powers for a third strain of the bacillus.

**Importance of Serum Dilutions.**

In view of the points mentioned, it is clear that specificity of a given serum may be determined only by diluting the serum to such an extent that the co-agglutinins practically are eliminated, the chief agglutinin being present in so much greater concentration that it is still able to agglutinate the homologous bacterium.

Theoretically, it is also important for the specificity of the reaction, that the particular strain of the organism to be used for the test correspond in its agglutinogenic molecules or receptors with those of the strain used for the immunization; the agglutinogenic receptors should be typical for the organism.

It is doubtful if group agglutination occurs among all closely related bacteria, inasmuch as Kolle found that it did not exist among the vibrios.

**Mixed Infections.**

It is thought possible that the multiple agglutinating power of a serum may be caused by mixed infections in some instances; although this is to be kept in mind, one should not overestimate its diagnostic importance, because a similar multiplicity may result from infection by a single microorganism.

**Production of Agglutinins. Ehrlich Theory.**

The explanation of the production of agglutinins by the body, according to the conception of Ehrlich, is similar to that already given for the production of antitoxins. That is to say, the agglutinin molecules are cast-off cell receptors, the overproduction of which has occurred as a result of their union with the agglutinogenic molecules of the bacteria. The antitoxin receptors were relatively simple, having no other demonstrable structure than that of the haptophorous groups through which they unite with the corresponding molecules of toxin. We have recognized in agglutinin receptor two groups, a haptophorous and a zymotoxic, consequently it must have this same structure when it is still a part of the cell. Ehrlich designates it as a receptor of the second order, which, being defined, is a receptor in which a haptophorous and a zymotoxic group exist as integral parts of the molecule (Fig. 6).

**Receptors of Second Order.**

In accordance with the side-chain theory, the ability of an animal to form agglutinins for a certain organism would depend on its possession of receptors of the second order which are able to unite with the agglutinogenic receptors of the bacterium. It is well established that different animals may not form serums with equal agglutinating powers for an organism. The following is a concrete example: Wassermann immunized rabbits, guinea-pigs and pigeons with a strain of the colon bacillus, and tested the three serums with fifteen other strains of the same organism. The serum of the guinea-pigs readily agglutinated the strain which was used for immunization, but scarcely affected the others. The serums of the rabbits and pigeons also agglutinated the homologous culture, but the co-agglutinins which they possessed did not affect other strains equally. Consequently, it was supposed that the cells of the three animals contained a limited number of receptors in common, whereas other receptors which were present in one of the animals were largely wanting in the other two.

**Inagglutinability of Some Organisms.**

Inagglutinability was mentioned as a characteristic of certain bacteria, especially the bacillus of Friedlander. This condition is much more important, when it involves an organism which usually is agglutinated with ease. In some instances, the typhoid bacillus when freshly cultivated from a patient, or, indeed, from contaminated water, has been found to resist agglutination by a strong serum; the same organism after a period of existence on artificial media becomes agglutinable. Widal and Sicard noted that often the serum of a typhoid patient would not agglutinate the bacillus which had been cultivated from the patient's own body, although the same serum would agglutinate laboratory cultures. Cultivation of the typhoid bacillus at 42 C. will cause it to lose its agglutinable property, but it may be re-established by subsequent cultivation at lower temperatures. It seems that this variation must be due to some change in the bacteria, i. e., in the agglutinable substance. It is possible that the organism, during its existence in the animal, becomes immunized against the action of the agglutinin just as the animal becomes immunized against the toxic action of bacteria. This condition in the micro-organisms would then be represented by a great excess of agglutinogenic receptors, so that a much greater amount of agglutinin would be required to cause clumping. It is readily seen how the use of an inagglutinable strain of the typhoid bacillus would affect serum diagnosis.

We are to consider that in the phenomenon of agglutination a reaction of a chemical or physico-chemical nature takes place between the agglutinin of the serum and the agglutinogen of the micro-organisms, the actual clumping following as a consequence of this reaction.

**Theories of Agglutination.**

Theories of agglutination have to do, not with the existence of agglutinin and agglutinogen, but rather with the nature of the reaction between the two, and the influences which bring about the clumping after the reaction has occurred. The original theory of Gruber supposed that the serum so affected the bacteria that they became sticky; consequently, as they came in contact they were, so to say, glued together. Dineur thought changes occurred in the flagellæ of the organisms, a theory which is untenable because some bacteria are agglutinable which do not possess flagellæ. Emmerich and Loew refer agglutination to the action of an enzyme which is produced by the bacterium itself, a theory which is not given general credence. Bordet excludes the vitality or motility of the organisms as factors, and believes that the process is purely a physical one, because of the fact that some known chemical substances may be made to precipitate or to agglutinate certain other chemicals; the theory presupposes some change in the molecular attraction between the microbes and the surrounding fluid.

Other theories have to do with the question of precipitation. As previously stated, when the filtrates of cultures of certain organisms are mixed with their corresponding immune serums, precipitates occur in the mixtures. It was mentioned that the substance in the filtrate which takes part in the precipitation ay represent in part the agglutinable substance which has een excreted by the bacteria. Nicolle supposes that the agglutinable substance resides in the external layer of the bacteria and that when the serum is added a coagulation occurs in the envelope, rendering coalescence with the envelopes of other individuals possible. The theory of Paltauf is somewhat similar; the agglutinable substance finds its way to the surface of the bacterium and is precipitated by its union with agglutinin. This shell of coagulated substance accounts for the sticky character which the envelope acquires, according to the theory of Gruber. Paltauf cites observations which tend to show that some substance actually is extruded from the micro-organisms, and that in properly stained specimens it can be seen as a precipitate surrounding and between adjacent organisms.

The multiplicity of theories leads one to suspect that the true nature of the process remains obscure.

(*To be continued.*)

## Clinical Reports

# DECAPSULATION OF THE KIDNEYS FOR BRIGHT'S DISEASE.*

KARL SANDBERG, M.D.

Surgeon in Chief to the Tabitha Hospital.

*CHICAGO.*

The question of decapsulation of the kidneys

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must decide whether this benefit is permanent or only temporary, and, if temporary, whether or not it is of sufficient value to justify the operation. The remedies at our command in cases of nephritis are few in number and of more or less doubtful effect, and it would seem that any new plan of treatment holding out sufficient hope of benefit should be given a thorough trial. To reach definite conclusions the cases must be perfectly selected, closely observed, and, so far as possible, fully reported, with remote as well as with immediate results.

*Patient.*—Mr. L. P. R., Norwegian, aged 35, married.

*History.*—He came to the United States in the early part of 1903, and has been employed here as assistant to a surveyor. He has never been ill in bed except for a day or so at a time. He has four brothers and three sisters living and well. His mother died of old age, his father of some pulmonary disease of two weeks' duration. His occupation in Norway was that of a non-commissioned officer. His habits are good. He drinks a glass of beer occasionally and chews some tobacco. About Christmas, 1903, he contracted a very severe cold which confined him to bed for about a week. In February, 1904, he began to pass bloody urine about every hour during the day and several times during the night. Then he began to notice swelling all over his body and was taken to Cook County Hospital, where he remained for two weeks, during which time the general swelling disappeared, but his condition otherwise remained the same.

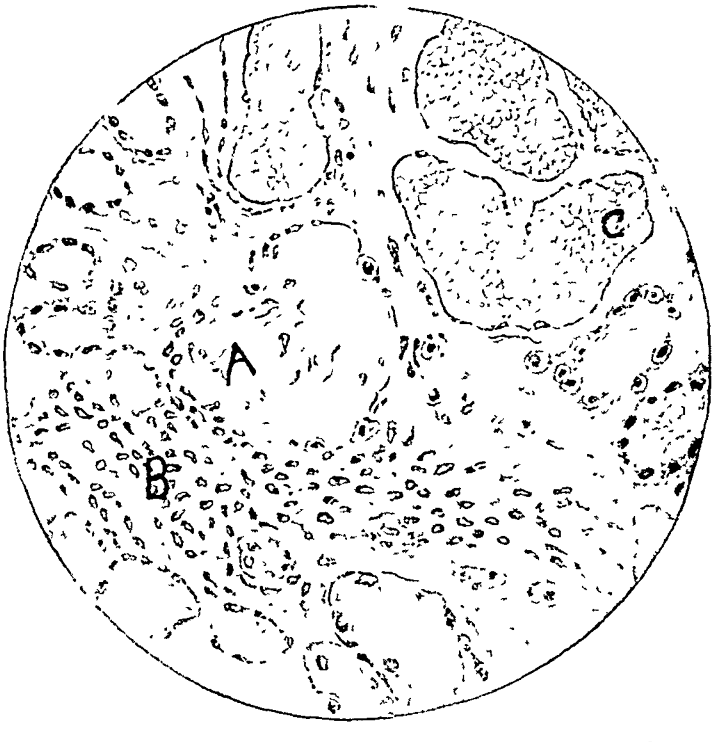

Fig 1 —Microscopic section. A ·Fibrous and hyaline glomerulus. B. Round cell infiltration C Distended blood vessel.

*Examination.*—On admission to the Tabitha Hospital, March 5, 1904, he looked anemic, but the physical examination of his body otherwise was negative. He had some cough and expectoration, and the sputum was examined for tubercle bacilli, but none was found.

Urine: The first twenty-four-hour specimen of urine measured 2,325 c.c., with a specific gravity of 1,008; of a light amber color, with considerable blood coloring matter; of acid reaction, and of a cloudy appearance. A large quantity of both nucleo-albumin and serum-albumin was found, the percentage being 7.5, with a percentage of urea of 1.5. Microscopically a great number of granular and some hyaline casts, quite a few erythrocytes and some leucocytes were found. On March 8 samples were taken from each kidney by means of the Harris segregator. The urine did not differ much from the two sides, the quantity of albumin being higher on the right, 11 per cent., than on the left, 8 per cent.

His pulse and respiration were normal, with an occasional slight rise of temperature.

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*Operation.*—On March 11 decapsulation of both kidneys was performed under chloroform anesthesia, the operation being completed in one hour. The capsules were pushed backward over the kidney, but were not removed. Both kidneys were large and of a dark color. There was very free serous and bloody discharge through the large gauze drains for several days.

*Postoperative History.*—During the week following the operation the temperature ranged between 98 and 102.5 F.; the pulse and respiration, however, remaining almost normal. Examination of a twenty-four-hour specimen of urine on March 13, two days after the operation, showed a drop in the percentage of albumin to 3 per cent., the quantity being 2,050 c.c. and the specific gravity 1,010. A twenty-four-hour specimen taken two days later only contained 1,450c.c., the percentage of albumin being increased to 5 per cent. From then on the quantity of albumin gradually decreased, so that on March 21 and 22 it was only 1.5 per cent.; the quantity remaining about normal. After the first week the patient's temperature practically was normal. While the percentage of albumin continued to decrease down to 1 per cent. and less, the quantity now again began to increase. On April 14 the urine had become of a natural color, nearly clear, with only 0.5 per cent. of albumin, specific gravity, 1,007, amount in twenty-four hours 4,100 c.c., no erythrocytes, leucocytes or hyaline casts to be found, only a few granular casts being present.

On April 19 the patient complained of pain in the left ear. On inspection a large cast of wax was found and extracted without, however, giving any relief; his temperature that afternoon went up to 99.8 degrees and remained slightly elevated the following day, during which there was some serous discharge from the same ear. The next day there was still more discharge and the temperature suddenly went up to 105. On the following day, April 22, vomiting set in and during the dressing of the ear the membrane ruptured and pus flowed from the middle ear. This was followed by a slight decrease in the temperature, but on the following day he began to cough and to expectorate rusty-red mucus, and dullness was found over the lower lobe of the right lung: the patient also became jaundiced. For nine days he was in a very serious condition, and during this time the urine became reddish-black and contained blood cells and 8 per cent. of albumin. On the ninth day a crisis took place and from then on his temperature, pulse and respiration were almost normal. On May 4 the urine had again assumed a much better appearance, containing only 1 per cent. of albumin, which, however, on May 14, was increased to 3.5 per cent., the patient suffering from sore throat with a rise of temperature. The temperature remained elevated for about two weeks and he was left in a feeble condition and greatly reduced in weight. From now on his recovery progressed without any further interruption, the temperature became normal, the percentage of albumin gradually decreased and the urine otherwise became more and more normal cept in quantity, which increased. His weight increased about forty pounds and he was feeling well. Examination of the urine on August 2 showed a slight trace of albumin, too small to be measured, no casts or blood cells, acid reaction, light amber color, a slightly cloudy appearance, a specific gravity of 1,012 and a quantity of 3,750 c.c.

*Pathologic Report.*—Dr. Peter Bassoe reports as follows: The section received for examination is small, measuring 4 mm. in its greatest dimension. Of the glomeruli present several are converted into hyaline fibrous tissue and adhere to their capsules: others are swollen and engorged with blood. In places the epithelial cells of the convoluted tubules are swollen and disintegrating: many of them, however, are fairly well preserved. All vessels are dilated and filled with red cells. Many collecting tubules are dilated and filled with blood and interstitial hemorrhages are seen. There are small collections of mononuclear round cells in several places and also general increase in adult fibrous tissue. These findings indicate the presence both of chronic interstitial changes and of an acute exacerbation.

*Result.*—He left the hospital on August 13, has since moved to North Dakota, where he is working on a farm, looks well and feels good. On December 8 he forwarded me by express a twenty-four-hour specimen of his urine. The quantity was 2,200 c.c., specific gravity 1,017, appearance cloudy, percentage of urea 2, one granular and no hyaline casts were found, and some leucocytes. A trace of albumin was reported from the laboratory. This, however, was so small that I was unable to see it in two tests (cold and warm nitric acid) made at my office before sending the specimen to the laboratory. While the patient, on account of the serious complications that arose, was obliged to remain in the hospital for over five months, the progress in the beginning was so satisfactory that it would seem reasonable to assume that barring these complications his recovery would have been complete in about two months.

The result of the operation seems to have been all that could be asked for up to date and it only remains for the future to decide as to its permanency.

684 North California Avenue.

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# IMMEDIATE CLOSURE OF TRACHEOTOMY WOUNDS.

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FORT WAYNE, IND.

Tracheotomy wounds are usually treated by the open method, whether the tracheotomy has been done for the removal of a neoplasm, or of a foreign body, or for dyspnea due to infection. In the presence of infection, it is unquestionably better to drain the wound, but in the absence of infection, it would be better to close the wound, provided, of course, that the cause of the dyspnea has been removed.

Immediate closure lessens the danger from pneumonia and from infection occurring in the wound itself, it shortens the convalescence and reduces to the minimum the deformity due to the scar; the latter being of particular consequence in females.

I firmly believe that the mortality in these cases may be lessened by immediate closure of the wound, and it seems to me that the morbidity may be decreased by adopting this method; the deformity certainly is lessened thereby.

In support of this opinion the following cases are reported:

Case 1.—Baby B., aged 2½ years, girl, was referred to me by Dr. W. D. Calvin, Sept. 29, 1904.

*Operation.*—Tracheotomy, below the isthmus, was done at Hope Hospital a few hours after the accident. A scarfpin, with the head lodged at the bifurcation of the trachea and with the point presenting at the lower part of the tracheal wound, was seized with forceps and removed. The wound in the trachea was not stitched, but the overlying tissues were coapted with subcutaneous stitches and adhesive plaster. A small drain cut from a No. 8 F. catheter was placed in the lower angle of the wound down to the trachea, and was removed on the third day. The wound healed by first intention and the child left the hospital on the third day.

Case 2.—Baby M., aged 3 years, girl, was referred to me by Drs. Veasy and Maloney of Avilla, on Dec. 25, 1904.

*History.*—Ten hours prior to admittance to Hope Hospital half of a peanut kernel had lodged in the larynx. The dyspnea had been continuous, and the child's condition when seen was very grave. The foreign body could not be felt with the finger in the mouth.

*Operation.*—Little anesthesia was required, the A. C. E. mixture and ether being used. A low tracheotomy was done, the isthmus of the thyroid was pulled upward, and the incision in the trachea extended in that direction until the foreign body, which was firmly wedged in the glottis, could be seen and removed. The trachea and overlying soft parts were coapted with fine catgut, and the skin with adhesive plaster. A tiny drain was left in the lower angle of the wound for twenty-four hours. The wound healed by first intention and the child was taken home on the eighth day.

The placing of drains was unnecessary, but was done because of the lack of confidence which one is likely to feel when trying a new method. In the first case, the tracheal wound was not stitched for the same reason. This, too, I think, was a mistake, as stitching the trachea prevents infection of the wound from that source. In the first case, considerable time was taken in endeavoring to locate the foreign body with the aid of the laryngoscope; in cases wherein the dyspnea is at all marked this is an error. If the foreign body can not be felt with the finger it is better to open the trachea at once. If the dyspnea is continuous and severe, one may confidently expect to find the body fixed somewhere between the bifurcation of the trachea and the glottis. If, on the other hand, the dyspnea is severe at times with intervals of free breathing it indicates that the foreign body is acting as a ball valve. My intention in writing this paper, however, is to call attention to the fact that it is better to treat tracheal wounds by immediate and complete closure, save in those cases where there is dyspnea or infection, than by the open method, which is the one in vogue

# *New Instrument*

## A NEW CURRENT CONTROLLER.

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With the renewed interest in the constant current as a conveyer of ionized bodies for the destructive sterilization of cancerous growths now shown by many physicians who but recently employed the Roentgen rays alone in the treatment of malignant growths, the question of proper apparatus for electrochemical surgery is one of much importance. Unless provided with good instruments, it is evident that the first requisite for the development of special skill in this work is wanting, and that imperfect results are sure to follow any attempt to put these methods into practice.

Plain speaking on this point is most essential. In the city of New York, with its many manufacturers of electrotherapeutic apparatus, not a single controller worthy of use in the cataphoric applications of the constant current has ever been made. In Chicago, good controllers have been made for some time, but until a very recent date the meters furnished in that city were worse than toys, for they deluded the physician as to the strength he was actually passing through the patient, the needle remaining at zero at times, with as much as, say, 80 milliampères in circuit. Recently a good meter has been put on the market in Chicago, and of my own city I can state that a good controller has been procurable for some time, if the physician knows exactly what to order.

With Chicago offering apparatus that controls the current easily, but blindly, and New York apparatus that does not even control it properly, the urgent need of a "physical section" of the American Medical Association is evident. Water will not rise higher than its source, and until the medical profession is educated to the point of knowing the physical problems involved in the use of natural forces in medicine, the instrument makers can not be expected to supply the want, and what is virtually quack practice with quack apparatus will rule, even in the offices of our otherwise well-educated leaders in medicine.

It is indeed a singular fact that otherwise progressive physicians, who daily use the electric light, telephone, electric railway and other developments of electric science of equally fundamental character, all of which have appeared within the past twenty years, are yet content to limit their therapeutic use of the constant current to methods crystallized by Remak and Erb some forty or fifty years ago.

The two central points in a constant current apparatus, either for the ordinary applications or for electrochemical surgery, are a controller by which the current may be turned on absolutely without shock from zero to the strength desired, and a meter that shall be accurate and remain accurate, and at the same time be free from undue resistance and heating effects. All else is merely accessory, though a cabinet has much value by permitting a ready use of other currents from the same treatment poles.

The new controller here described (Fig. 1) is a further development of the graphite controller which I devised in 1887, and which was later improved by Jewell of Chicago. To adapt it to the large amperages required in the cataphoric treatment of cancer the controller has been greatly enlarged, the diameter of the graphite circle being increased to 12 inches. This permits of the most gradual attainment of currents of any strength, from a fraction of a milliampère to 1,500 milliampères, the source of the supply being either the 110-volt direct current mains, or a battery of dry cells. To further adapt this controller to permit the 110-volt mains to be used in the most delicate work in electrochemical surgery, such as the removal of hairs, destruction by electrolysis or cataphoresis of minute growths about the eyes or in other sensitive situations, where we wish to use one milliampère or less of current with only such voltage as required, a special arrangement has been added.

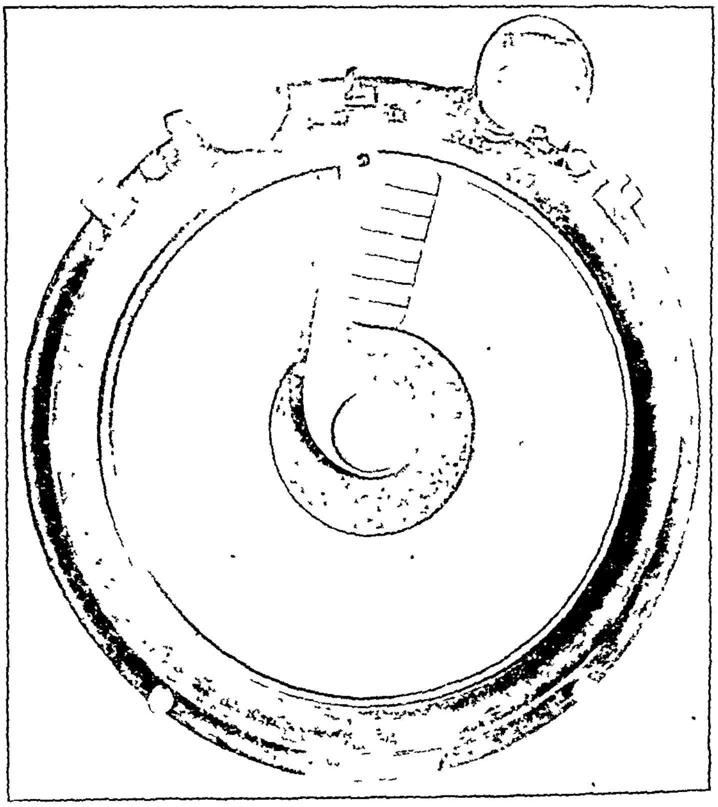

Fig 1.—The universal controller. The positive and negative wires of the current mains are attached to the upper P. and N binding posts The lamp at the left is in series and may be cut out by the switch in the middle. The lamp to the right is in shunt with the patient.

This is simply the placing of a sixteen candle power lamp between the patient's poles, in parallel with the patient (Fig. 2). The result is that the great bulk of the voltage is expended on the lamp, which presents less resistance than the human body in these minute applications, while but a fraction will be expended on the body (Fig. 3). Care must be exercised by the manufacturer to place the meter in the patient's path only, and not in the path of this shunt lamp, otherwise the reading will show the amount of current flowing through the lamp as well as through the patient.

When this shunt lamp is turned on at its key and the current turned on at the crank arm the current will seek the three paths shown diagrammatically in Figure 3; so little of the voltage and milliampèrage traversing the meter and patient that the crank arm of the apparatus will need to be turned half over the area to obtain as much as one milliampère in this circuit, while the shunt lamp will show a dim glow. This slow

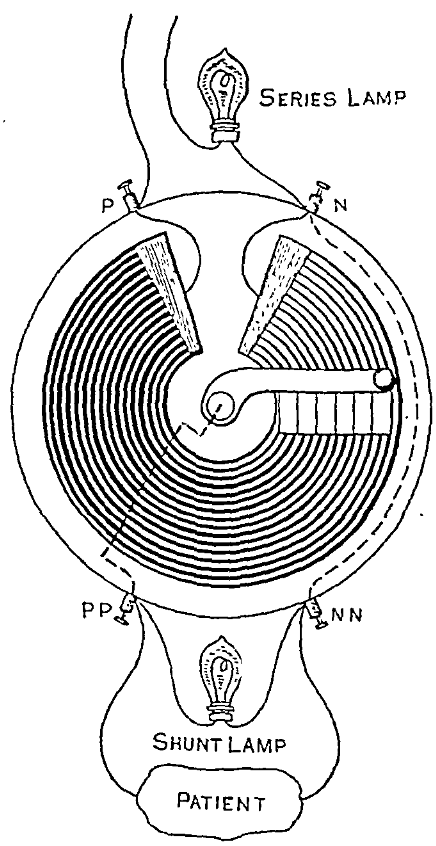

Fig. 2.—Diagram of wiring of the universal controller, showing series lamp above and shunt lamp below; the latter placed in the position to show its use most clearly. The meter must be intercalated between P. P. and patient, or else between N. N. and patient.

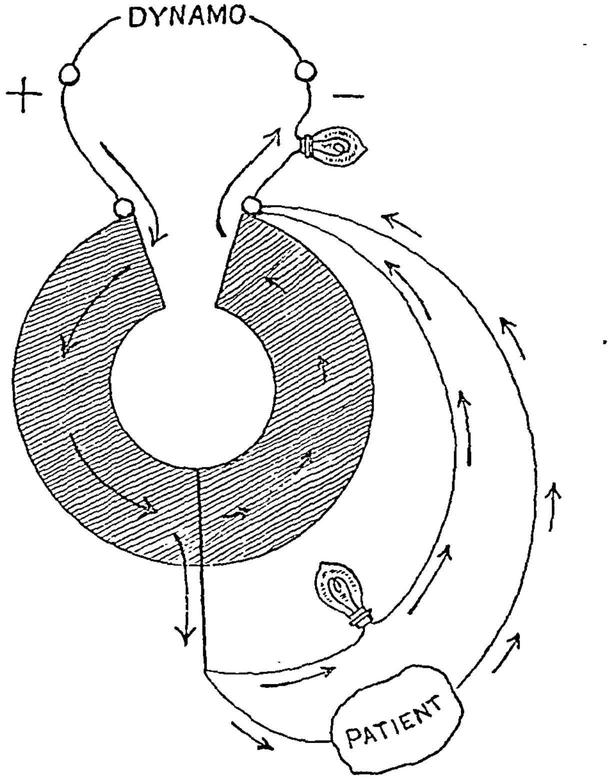

Fig. 3.—The universal controller. Diagram of the several paths of the current. To render the diagram clearer the crank arm of the controller, shown as a perpendicular line in lower portion of figure, is shown carrying the current beyond the graphite area directly instead of to a point within the circle. The current, coming from the dynamo or cells, is seen to divide into three paths, the greatest portion, shown by the size of arrows, passing directly through the shunt lamp, the next approximate amount passes through the patient, and the least through the graphite area alone.

turning on of the current lessens pain of itself, but the difference in pain excitation between, say, two milliampères from the full voltage of 110 volts and two milliampères turned on in this shunt circuit, is strikingly shown by making and breaking the circuit with the moist negative pole on one's hand between the thumb and forefinger.

In the controllers which I have had made this shunt lamp is fixed at the upper right corner of the instrument. To protect the graphite surface from carrying too much current in careless hands, and to cut down the current further for these finer applications, another lamp is placed in a permanent series with the whole apparatus, as shown in the upper portion of Figure 2. This lamp is shown in the upper left corner of Figure 1, and may have a cut-out switch when used by experts in major cataphoric applications.

With both of these lamps turned on, this controller is adapted to the most delicate applications of the constant current, cutting the 110-volt current down to a fraction of a milliampère and a slight voltage, and acting similarly to a current from a battery of cells. With both lamps turned off, it reverts to the original condition of a series controller for heavy constant currents, faradic currents and sinusoidal currents.

With both lamps turned on, the controller may also be used to light small incandescent diagnostic lamps from the street current, the small lamp being placed in the patient's circuit with the meter cut out.

At my request, the Frank S. Betz Co. has constructed a handsome cabinet in which this controller is the central feature, with switches that enable it to be used with either the 110 volt direct current or a battery of dry cells; the latter, when of good make, furnishing a most excellent and reliable current for the heaviest applications. A reliable meter of low resistance and an excellent faradic inductorium make the apparatus both complete and up to date.

The separate controller is furnished in a box, permitting it to be carried to operations wherever the direct current or a portable battery of dry cells is available.

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**The Neglect of Medical Jurisprudence.**—There is no more important nor more neglected course in the medical college curriculum than that of medicolegal jurisprudence, says the editor of the *Medical Fortnightly*. This is apparent to one who scans the pages of the college catalogue, wherein are glowingly described the clinical advantages of this hospital with "400 beds" at the disposal of the college faculty, that hospital with "magnificent amphitheater" capable of seating so and so many students, etc. A bare line or two may refer to a course of lectures by some distinguished member of the legal profession on the legal features pertaining to the correct practice of medicine, the responsibility of the physician, etc. If we are struck with the absence of teaching on this subject in the college catalogue, how much more painfully are we impressed with this fact when we see medical men called on the witness stand as so-called "experts" in various lines of medicine. The spectacle, as we often see it, of the medical man posing as an expert witness in court cases is truly a sad one. In this country the qualifications for expert testimony are somewhat hazy. There is not much difficulty in convincing bar and bench in America of the expert qualifications of "any old doctor." . . . We have heard medical men giving testimony as experts in certain homicide cases in the criminal courts of this city. Most of them are by virtue of a confession of their medical training as little qualified to testify as experts as is a child to give a dissertation on the history of modern psychology. There is need for the teaching of the many scientific principles of forensic medicine in our medical schools. There is need for more men of proper training to devote themselves to this subject as a life-work. . . . Let some, at least, seek to uphold the standard of medicine before the bar of justice, where often human life and liberty is at stake, where often, we swear it, human lives have been sworn away on incompetent testimony, or knaves have escaped the hangman's noose because of poorly given or ignorant testimony.

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## TRUTH AND POETRY CONCERNING URIC ACID.

### XIII.

Let us turn to the work which has been done on uric-acid excretion in gout and see whether or not it permits us to draw any safe conclusions regarding the excess of uric acid now known to exist in the blood in this disease. In studying the physiologic side of uric acid, we made considerable use, it may be recalled, of investigations of uric-acid excretion in health in order to gain ideas concerning the formation of uric acid in the normal body. We made the probably legitimate assumption that the amount of uric acid destroyed in the healthy body is a tolerably constant quantity, and, since the amount of uric acid excreted in health is the algebraic sum of the uric acid formed and the uric acid destroyed, we thought it justifiable to make important deductions regarding uric-acid formation from a study of the uric-acid excretion. This simple method, however, is unreliable when we come to a study of uric acid in disease.

In gout, for instance, we know really almost nothing as yet regarding the function of uric-acid destruction; it may be undisturbed, but it is also possible that it is markedly altered; indeed, there are investigators who suggest that the main cause of uric-acid excess in the blood in gout may be an impairment of the normal process of destruction in the tissues. At the time when it was supposed that uric acid arises in the body as a result of the incomplete oxidation of albumin, it was common opinion that its increase was due to its imperfect destruction, that is, to a failure of the body to oxidize albumin completely to urea. Now that we know that the uric acid of the body arises chiefly from nucleins and not from albumin, there is danger of our losing sight of faulty destruction as a possible factor in causing an increase of uric acid in the blood; as Wiener points out, until it is disproved, this possibility should be borne in mind. An attempt was made by Klemperer[1] to subject the matter to direct experimental test. He instituted a comparison between the power of the blood in gout, to destroy uric acid and that of the blood in health, but we need not refer to his conclusions, for we have already learned that the blood in health has scarcely any power of destroying uric acid, that function belonging to certain organs rather than to the blood. We believe that, thus far, no experiments with the organs from gouty cadavers to determine their power of destroying uric acid have been made; until these are forthcoming the question must be left open. Uric acid has been fed to gouty patients by Weintraud; he asserts that the uric-acid excretion is sometimes increased thereby more than it is in healthy individuals, but his findings were not constant. We must admit, therefore, for the present, that changes in uric-acid excretion in disease give us no clue as to whether it is the formation of the substance or its destruction which is disturbed.

Another factor which must influence uric-acid excretion in gout and further complicate its problems consists in the deposition at one time and the absorption at another of the masses of mononatrium urate of the gouty tophi. At times of deposition the excretion of uric acid would be diminished by the amount deposited; at times of resolution and absorption it would necessarily be increased.

On surveying the whole field, therefore, and taking into account various possibilities, it will be seen that in gout an increased excretion of uric acid might be due (1) to increased formation, (2) to decreased destruction, or (3) to the solution and washing out of gouty deposits; while a decreased excretion might be due either (1) to the deposition of mononatrium urate in the tissues, or (2) to a retention of uric acid in the blood or tissues owing to impairment of function of the excretory organs, the kidneys. When it is remembered that not one only of these factors but several of them together may be concerned in a given case, the complexity of the situation becomes obvious. No one ought to expect, in view of these considerations, that uric-acid excretion in gout will show any typical behavior, nor would any one, it would seem, be willing to draw any very far-reaching conclusions as to the pathogenesis of gout solely from a study of the amounts of uric acid excreted, and yet we find in the literature numerous instances of attempts at deduction from such values!

Thus forewarned, we may safely give ourselves over to an examination of the results of researches which have dealt with the excretion of uric acid in gout. Most of them deal with excretion in the urine alone, the feces being unheeded, and none but the most recent have made any pretense to that completeness and rigor which we are coming to demand shall characterize serious studies in metabolism.

Garrod made the first determinations; he declared that a smaller amount of uric acid than normal is contained in the urine of chronic gout and also in that of acute gout in the intervals between attacks. Others, working on the subject between 1850 and 1880, confirmed Garrod's findings for chronic gout, and assumed that the diminished excretion is due to retention; the control experimenters, however, could not support Garrod's ideas regarding acute gout for, though excretion in the intervals between attacks appeared occasionally to be diminished, examinations extended over a long period, though they showed considerable variations, yielded, on the average, normal values.

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[1] Klemperer, G.: Lösung und Zerstörung der Harnsäure im Blute Gesunder und Gichtkranker: ein Beitrag zur Bewertung der Gichtmittel. Therapie der Gegenwart, 1901, 344.

In 1889, Pfeiffer urged the necessity of establishing the physiologic limits of variability of uric-acid excretion; he himself attempted to do this, and concluded that the amount excreted in normal individuals per 100 kilograms of body weight is constant. Later, in 1892, he emphasized the importance of the relation of excretion of uric acid to that of urea and stated as his belief that when the proportion is greater than one of the former to thirty of the latter, an abnormally high uric-acid excretion is going on. All these calculations of Pfeiffer lost their value, however, when it was shown that uric-acid excretion stands in no definite relation either to body weight or to the excretion of urea. We have seen that urea excretion is related to albumin metabolism, while uric-acid excretion is independent thereof, being chiefly a product of the decomposition of nucleins.

*(To be continued.)*

## THE BABINSKI PHENOMENON AND OPPENHEIM'S SIGN.

Neurologists have been active of late in seeking for new varieties of reflexes and in endeavoring to interpret clinically alterations which occur in them. Among the more interesting of the phenomena described are the Babinski phenomenon and Oppenheim's sign.

The former of the two reflexes is elicited by stroking the plantar surface of the foot with a needle or with the handle of a percussion hammer. In normal adult individuals, the response consists in plantar flexion of the toes, but in new-born infants, and in patients in whom the pyramidal tract is degenerated, there is dorsal flexion, particularly of the great toe.

The reflex known as Oppenheim's sign was described in 1902. On stroking the medial surface of the leg at the posterior margin of the tibia or a little behind it with the blunt handle of a percussion hammer, the stroke passing from above downward from a point a hand's breadth below the knee joint to the malleolus, healthy individuals react, as a rule, by plantar flexion of the toes. Patients with spastic symptoms of the lower extremities, on the contrary, respond with a contraction or a tension of the tibialis anticus, extensor hallucis longus, extensor digitorum communis and sometimes also of the peroneal muscles. To apply the test successfully it is often necessary, as with the patellar reflexes, to resort to reinforcement.

The tendon reflexes in the lower extremities may differ in their behavior from these cutaneous reflexes when the pyramidal tract is diseased. It seems likely that the two kinds of reflexes follow different paths in the central nervous system. The tendon reflexes, as a rule, are increased when the pyramidal tract is interrupted (except in certain cases of total transverse lesion of the cord in which all cutaneous and tendon reflexes may be abolished). The view that certain fibers running in the pyramidal tract act by inhibiting reflexes or by regulating tonus is that usually put forward to explain this phenomenon.

The cutaneous reflexes, however, are not increased by disease of the pyramidal tract, but instead there is pathologic alteration in the character of these reflexes. Entirely different muscles or groups of muscles are called into play in the reflexes under abnormal conditions of the pyramidal tract than those active under normal conditions. The fact that the Babinski phenomenon and Oppenheim's sign can be elicited in a new-born babe before the pyramidal tract is developed or, at any rate, before it is medullated, makes it probable, as Pfeifer[1] has suggested, that the reflex arc follows a phylogenetically older path than the pyramidal tract—possibly a bulbospinal or cerebrospinal path or one from the basal ganglia. During the first three months of life stimulation of the plantar surface of the foot causes dorsal flexion of the great toe or foot; after the pyramidal tract is developed, these cutaneous reflexes travel over a new path by way of the cortex and a new group of muscles is called into contraction—plantar flexion of the toes and of the foot occurs. When the pyramidal tract becomes diseased in an adult and stimulation of the plantar surface of the foot or of the medial side of the leg calls forth dorsal flexion of the great toe or dorsal flexion of the foot, we may assume that the reflex current has returned to its primitive path, the normal one to the cortex and return utilized by the adult having been interrupted. Of course, in cases where both paths are destroyed, as, for example, in complete transverse lesion, the plantar reflexes are totally abolished.

While the above theory seems plausible, it must be borne in mind that the whole problem of the nature of the reflexes is at present in an unsatisfactory state. Knowledge concerning it is in a period of flux, and further studies must be awaited before definitive conclusions can be reached.

## AMEBIC APPENDICITIS.

In Musgrave's important contribution to the treatment of amebic dysentery[1] are incorporated observations on amebic appendicitis which are worthy of special mention, particularly on account of their interest to surgeons. In 150 necropsies in cases of intestinal amebiasis (amebic dysentery) which he reports in Manila, 14 cases showed appendicular lesions. Six of these were due to an amebic infection, and in all cases this was a direct continuation of a process secondary to a similar one in the cecum.

Where the records are complete, all cases showing appendicular lesions at necropsy have given clinical symptoms during life, indicating an involvement of the appendix. These cases, however, form but a small number of the cases of amebic dysentery that have appendicular symptoms. Such symptoms are often produced by extensive ulceration of the cecum, by omental adhesions, or by a pericecal abscess, and occasionally no lesion is found at necropsy that would account for them.

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[1] Pfeifer, B.: Ueber die Bedeutung des Babinskischen Fusssohlenreflexes und des Oppenheimschen Unterschenkelreflexes als Kriterien der Pyramidenstrangerkrankung. Monats. f. Psychiat. u. Neurol., vol. xvi, 1904, p. 565.

Cases of intestinal amebiasis with symptoms of appendicitis may be divided into three general classes, according to the findings at operation or at necropsy: 1, No disease of the appendix; 2, a chronic appendicitis from other causes, but without amebic infection; 3, an amebic appendicitis. Thus determined. cases of the first class are frequently met in clinical practice in the Philippines, those of the second are not infrequent, while those of the third class are least frequent. In the necropsy records, however, the third class is more frequent, since practically all of its cases are fatal.

The differentiation of these three classes from each other during life is very difficult. In many instances is even impossible to be sure that the appendix is involved at all. When, however, the lesions in the appendix are more important and the infection in the cecum is less intense, with care the diagnosis sometimes may be made.

On the other hand, the diagnosis in the tropics of an amebic process in or about the cecum, from an appendicitis due to other causes, offers, as a rule, no great difficulty. The history of dysentery or diarrhea and the finding of amebæ in the stools point to an amebic infection. The general symptoms also are usually less severe in an amebic process than in an ordinary appendicitis, the fever is slight or absent, nausea is less frequent, vomiting rare, muscle-spasm slight, and pain on deep pressure rarely acute. The tumor is generally soft and boggy, is rarely circumscribed, definite, and low in the iliac fossa, as in ordinary appendicitis.

The medical treatment of cases of amebic dysentery suggesting involvement of the appendix, is that applicable to appendicitis from other causes, plus high, large, quinin enemas. In all these cases a surgeon should be called in consultation. Operation is to be considered, but it is often inadvisable, since it necessitates the discontinuation of the quinin treatment.

Operation is contraindicated when the cecum alone is involved. It is rarely necessary when there is an aggravation of an existing chronic appendicitis from other causes, and it is unsatisfactory in the majority of cases of amebic appendicitis, for, although early operation is indicated here, the operator usually finds a gangrenous cecum and only succeeds in increasing his mortality rate. In 100 necropsies there were but two cases in which operation would probably have saved or prolonged life.

## SANITATION AT PANAMA.

Vindication of Dr. Reed's report is found in the fact that the President has accepted the resignation of the first Isthmian Canal Commission. To what extent this action is to be attributed to the Reed charges may never be known; but, according to the public press, they had much to do in justifying the President's action in the eyes of the people, to say nothing of its complete justification in the eyes of the medical profession.

To any one who has read the report of Dr. Reed. the answer of the commission will appear to be very weak, in fact, divested of the verbiage of argument and explanation, it will be found to be a confirmation of nearly all the important charges. Thus it incidentally admits that "modifications of the suggestions submitted by the medical staff were made from day to day"; that in refuting the charge that "Colonel Gorgas submitted an estimate for the establishment of emergency hospitals along the line; this estimate was reduced," the commission lets it crop out that "he (Gorgas) had suggested the establishment and equipment of twenty emergency hospitals," but that "it was decided that it would be better to establish only three"; the charge that Colonel Gorgas had asked for twenty inspectors and had been given only eight is "denied" by the statement that "the non-allowance of twenty sanitary inspectors to serve in the canal zone under the chief sanitary officer was one of the modifications of the suggestions of the chief sanitary officer already alluded to"; the charge that Colonel Gorgas had been denied mosquito screening asked for for Ancon hospital is "denied" by the statement that "the original proposition of the chief sanitary officer to construct screens entirely around the verandas and porches of Ancon Hospital buildings was modified"; the charge that the commission had established cheap medical competition is "denied" by quoting from a letter from Colonel Gorgas, in which he says: "I have discussed this with a committee appointed to represent the physicians (referring to the medical profession of Panama)"; the charge that the commission had established a cheap schedule of prices for medical and surgical services at Panama is "denied" by stating that "this is a quotation from page 166 of the minutes of the proceedings of the commission"; the charge that internes must stay a year to be entitled to free transportation home is "denied" in a statement in which occurs the rather embarrassing admission that "it is true that internes are expected to remain a year to entitle them to free return transportation."

There are numerous other statements in the commission's denial that similarly fail to deny, while the entire manifesto only emphasizes rather than refutes the accusation—the only essential charge in Reed's report—that the sanitary department at the Isthmus has been unjustly subordinated. The commission tries to dis-

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1. See page 1098, this issue.

credit this charge by speaking of changes having been "agreeable" and "acceptable" to the sanitary staff. The words are probably used to obscure conditions more accurately describable by such words as "acquiescence" and "submission." This, we are told, is what a soldier is presumed to do when his requests are denied and he receives orders contrary to those he had asked for. And it is precisely against this order of things, demonstrably established and enforced by the commission, that the medical profession has protested. It is a condition absolutely incompatible with that freedom of action necessary to secure the highest results for the greatest good.

The Journal took a decided stand on this point when the government first planned to build the canal, reiterated it when the commission was about to be appointed, and lamented the apparent disregard of it when the members of the commission were named. The principle must still be recognized.

The new commission—with the new arrangement—is certainly a great improvement. It is, in effect, an executive commission of three members, one to attend to business in the United States, one to administer the civil government in the canal zone and one to dig the canal itself. The four remaining members, while excellent men, are essentially supernumerary and their appointments are recognized as tentative pending the change in the law, which now makes it necessary to have a commission of seven members. There was, under such circumstances, no occasion to move for the appointment of a medical man on the commission. Mr. C. E. Magoon, as governor of the zone, will have sole control of sanitary matters, and his past record warrants us in believing that he appreciates the conditions and that Colonel Gorgas and his associates will now receive that cordial support which they ought to have had from the start. The sanitary outlook is certainly greatly improved by the change.

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## THE NEW PROFESSORS OF MEDICINE AT JOHNS HOPKINS UNIVERSITY.

Naturally, the American medical profession in general is directly interested in the careers and personality of the men who have been selected to continue the work of one of the first and most influential of its teachers and leaders toward higher standards. The advancement of Dr. Thayer to a full professorship in clinical medicine is a well-merited promotion. Professor Thayer has risen from the ranks, so to speak, as the result of continued, patient service in various capacities in Professor Osler's clinic, beginning his apprenticeship in 1891. Under the influence of his illustrious teacher he early became a productive worker in the great field of clinical medicine. In his St. Louis address last fall Professor Thayer urged strongly that the humanitarian side of the education of our practitioners must not be neglected if medical men are to maintain to the fullest extent their influence for good, for the moral, mental and physical health of the community. This shows us one phase at least of the ideal toward which he is striving in his work as physician and teacher. We confidently predict that Professor Thayer will grow in strength and influence as one of the leading clinical teachers in this country.

For the past five years Professor Barker has been head of the department of anatomy in the University of Chicago. The metamorphosis here illustrated of a genuine professor of anatomy into a professor of medicine is a rare occurrence. We are quite accustomed to the idea that so-called anatomists may turn surgeons, but here it has concerned mostly practitioners of medicine that lectured on anatomy in some medical school until they secured a more desirable post in clinical surgery. In the present instance the change seems perhaps more radical. The professor of anatomy in the University of Chicago does not practice medicine. Medical history, however, has examples of apparently equally radical transformations and in many cases with the most happy results. But when we look more closely into Professor Barker's previous work and his general qualifications it will be found that after all the change is not nearly so great as it may seem to be on first sight.

It is apparent that for many years Professor Barker must have had internal medicine in view as the chosen field for the work of his mature days. We have referred elsewhere to his early training and work in the medical department and the pathologic laboratory of the Johns Hopkins Hospital. His most important investigative work during his professorship of anatomy deals with a subject of medical, more particularly neuropathologic, as much as purely anatomic, interest, namely, the changes in the brain and spinal cord in hereditary ataxia. During the same period he investigated, as member of a commission appointed by the U. S. Public Health and Marine-Hospital Service, the plague situation in San Francisco, and published an article on "The Clinical Aspects of Plague."[1] Several of his general addresses deal with questions that concern medicine directly and anatomy only remotely. In Berlin last year he carried on investigations into the chemistry of the albumins. In the meantime anatomy was not neglected. Spalteholz's "Atlas of Human Anatomy" was translated. He wrote the article on the histology of the brain for Wood's "Reference Handbook," and not long ago there appeared "A Laboratory Manual of Human Anatomy" (J. B. Lippincott & Co.), which has been received with marked favor by distinguished teachers. Two addresses, "The Study of Anatomy," and "The Unveiling of the Cell," have appeared in The Journal. In both of these addresses, as well as elsewhere, is evinced a thorough and minute familiarity with chemistry, general and physiologic, as well as a clear appreciation of its increasing importance in medicine. Part of the time during his last visit to Europe was spent in acquiring greater familiarity with chemical technic. In his well-known address on "Medicine in the Universities,"[2] an address that received much notice, especially from those that are interested in the upbuilding of the medical departments of our large universities, he outlined clearly what he styles the real university medical school, giving special attention to the organization and equipment of the clinical branches. We mention this address in particular because it shows that he has given much thought to the development of general medicine in this country on the highest scientific planes.

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[1] Amer. Jour. Med. Sci., October, 1901.

From this survey we see that the change from anatomy to medicine is not at all abrupt and radical. On the contrary, we learn that a gifted man who has devoted his energies to the study of medicine in many of its aspects and especially of the fundamental principles and sciences, giving particular attention to neurology and chemistry, now takes up the teaching and investigation of general medicine as the main work of his life. In place of the early and exclusive specialization often practiced nowadays in medicine, Professor Barker has secured a broad and thorough general dis- line and a universality of medical interests that be- ak the exceptional man.

He is a man of fine culture and breeding, courteous, considerate, of a pre-eminently winning personality. Gifted with a ready command of felicitous expression, he has come to be much sought for addresses on various occasions not always of a medical character. He always has been a popular and inspiring teacher of students, both as lecturer and as guide and counselor in advanced work. Finally, we wish to emphasize one distinguishing characteristic in all his work and conduct, and that is his unfailing loyalty to high ideals. We congratulate Professor Barker on the auspicious conditions that mark the beginning of a new phase in his career and we also congratulate the Johns Hopkins University because it is able to provide so well for its ical teaching and investigation in internal medicine the appointment of comparatively young men who received the essential parts of their training in its 's departments, and in a large degree under the influence of its first professor of medicine.

## ITUTION BEFORE EXAMINING BOARDS.

nt danger which examining boards have to possibility of impersonation of one man by to avoid this some boards have required present their photographs, supported by recent attempt to defraud in Maine is our news columns this week. The question many times has a more shrewdly planrefully executed fraud of this kind Men who will cheat in this way will commit other dishonest acts, and thus we have added to the ranks of the medical profession men who are sure to bring dishonor and discredit to its name.

## A QUEER SURGICAL OVERSIGHT.

Such surgical accidents as the leaving of a forceps or a sponge in the abdomen during laparotomy are by no means unknown and every careful surgeon is alert to avoid them. The most remarkable accidental inclusion, however, is reported from Paris, where a young woman has started legal proceedings on account of the finding of a pair of noseglasses in her abdomen. It appears that a laparotomy was performed on her in America and, her condition not being improved, a second one was performed in Germany. Still later the French physicians had the last innings and removed the eyeglasses from their peculiar position. The question is, who left them there? The natural presumption is that if they were left there at the first operation they should have been found at the second. There would seem to be a good chance for determining the question by testing the respective operators' eyes. While we comment on the matter, we do not vouch for the occurrence, as we have only the newspapers for our authority; no mention is made of it in our foreign exchanges.

## THE DISSEMINATION OF STREPTOCOCCI.

During the past, one of the most unexplainable facts in surgery has been the occurrence of infection in surgical wounds, after all reasonable precautions had been taken to prevent it. The experiments of Flügge show the possibility of the dissemination of tuberculosis germs through droplets of sputum, and the experiments of Alice Hamilton and of Mendez de Leon, furnish an explanation of this possibility. It appears from Dr. Hamilton's[1] studies and experiments, published in this issue of The Journal, that streptococci are found in the majority of normal mouths, and that they are expelled to varying distances in the acts of coughing, breathing and even talking. The fact that no absolute rule as to number of germs or distance to which they are expelled can be laid down adds the element of uncertainty to this danger, and renders it all the more difficult to guard against. Mysterious epidemics of septic infection are thus explainable, as well as the aggravation of such disorders as scarlatina. The aggravation of the virulence of germs by successive cultivations on suitable media add decidedly to the probabilities of evil from this source. Aseptic surgery and medicine are constantly meeting new problems, and these studies throw light on much that has been obscure in the past. The value of the mouth guard for operating surgeons and the necessity of isolation of septic cases are also clearly demonstrated.

## PRISON LABOR LEGISLATION.

The Journal has called attention repeatedly to the evils existing in our state prisons where contract labor has been abolished by law. There is no place where rational employment is more necessary to mental and

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[1] See page 1108, this issue.

bodily health than in state prisons, and a penitentiary sentence without it may be equivalent to the infliction of hopeless insanity as a punishment for any kind of felony. The law does not contemplate this, but that is often the practical result. It has been proposed in the state of Illinois, in order to meet the conditions brought about by the laws enacted at the instance of labor organizations, to employ the inmates of the penitentiary in certain public works, such as improvement of the highways, etc. This would involve the necessity of transporting the convicts to their places of labor and probably the establishment of convict camps at various points throughout the state. So far as meeting the sanitary requirements, provided the law is humanely carried out, the plan is unobjectionable. Outdoor work and outdoor life for even a portion of the year would be a great safeguard against the mental and physical deterioration that idle prison life involves. There are objections, however; one is the expense, others relate to matters of discipline and safety and still others are sentimental to a certain extent. All of these will have to be carefully considered and the last perhaps not the least.

### CHEMICAL PATHOLOGY OF GENERAL PARALYSIS.

The subject of the chemical pathology of the nervous system is a recently opened field for investigation. In his lectures on biochemistry of muscle and nerve,[1] the first Herter lectures in the University and Bellevue Hospital College in New York, Professor Halliburton reviews the work of Mott and himself on the chemical pathology of general paralysis of the insane. The attention was directed especially to the cerebrospinal fluid which, in this disease, is greatly increased in quantity in order to fill the place once occupied by the shrinking brain substance. It was found that the fluid from general paralytics contains an excess above the normal of proteid material (nucleoproteid) and, furthermore, that cholin is present not only in the cerebrospinal fluid but in the blood of these patients, which is not a normal occurrence. Now when nucleoproteid is injected intravascularly in certain animals it may produce thrombosis, and Halliburton suggests that an increased coagulability of the blood in the cerebral vessels, caused by nucleoproteid, may be a factor in producing circulatory cerebral disturbances and, consequent on them, the acute apoplectiform and epileptoid seizures characteristic of general paralysis. Cholin, which is directly traceable to, and indicative of, disintegration of brain tissue, is not markedly toxic, yet there is reason to believe that continual liberation of cholin in small doses may cause feeble circulation due to cardiac weakness—a characteristic concomitant of the latter stages of the disease—because cholin depresses the heart. In general paralytics prolonged convulsions are followed by a distinct fall of the blood pressure and, inasmuch as such convulsions are associated with the breaking down of nervous tissue, it is not at all far-fetched to attribute the fall of pressure to cholin. These observations and the more or less tentative deductions from them throw some light on the complex and hitherto almost wholly unexplained phenomena of general paralysis. We see that the work of Mott and Halliburton so far indicates that some of the symptoms of the disease are due to autointoxication with the products of disintegrating cerebral tissue. The main etiologic problem of the disease remains as enigmatic as before and the first cause that directly induces this breakdown of nerve tissue is still unascertained.

### COUNCIL ON MEDICAL EDUCATION.

The Council on Medical Education of the American Medical Association will hold its next meeting in Chicago April 20. This will be an important meeting for the reason that to it have been invited representatives of the licensing and examining boards of the various states and territories, as well as representatives of the college associations. One of the objects of the meeting is that of securing the views of those connected with the licensing boards. Naturally, such views will be of great importance to the members of the council and will aid them in formulating plans. The attendance at the meeting promises to be a large one. About half the states have already appointed official delegates, and several more have signified their willingness to cooperate. The earnestness with which the spirit of the work has been received by all the boards of examiners promises much for the future. The subjects which will be brought before this conference are of interest to licensing bodies, to medical colleges, to the medical profession, to those interested in reciprocity, and to all interested in, and concerned with, medical education. Dr. Arthur D. Bevan will present a report considering the present status of the laws of the various states and territories with reference to licensure; Dr. Victor C. Vaughan and Dr. J. A. Witherspoon will present the subject of preliminary education, and Dr. W. T. Councilman and Dr. Charles H. Frazier will report on the subject of the curriculum of medical colleges. It is hoped that this conference will result in a better understanding of conditions as they exist, and in bringing about more uniformity in all matters pertaining to medical education, reciprocity, and the enforcement of medical laws.

## Medical News

### ILLINOIS.

**Facilities for State Health Board.**—The appropriations of the State Board of Health have been materially increased by the present general assembly. Funds for a state laboratory and a registrar of vital statistics have been granted.

**Appropriations for Asylums.**—The legislature has appropriated $380,600 for the maintenance of the Illinois Western Hospital for the Insane, Watertown, for the next biennium. ——The appropriation for the Illinois Eastern Hospital for the Insane, Kankakee, was cut to $154,000.

**Fire at State Hospital.**—A fire at the Illinois Southern Hospital for the Insane, Anna, damaged the power-house to the extent of $5,000. No casualties occurred, but the patients, as a matter of precaution, were taken from their rooms and marshalled in halls in case it proved necessary to remove them from the building.

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[1] "Ten Lectures on Biochemistry of Muscle and Nerve," by W. D. Halliburton, M.D., F.R.S., Professor of Physiology, King's College, London. With illustrations. Cloth. Pp. 160. Price, $2.00 net. Philadelphia: P. Blakiston's Son & Co. 1904.

**Legislative Status.**—Seven osteopathic bills have been introduced in the general assembly during the present session. One of these is dead. Three (House 228, 229 and 274) are still in the judiciary committee of the house. Two (Senate 169 and 292) are on the third reading in the senate. One (Senate 311) is in the judiciary committee of the senate.——Two optometry bills have also been introduced. Both (Senate 237 and House 432) are in the judiciary committee of the house. These bills are being opposed by the State Board of Health, which questions their constitutionality, and the secretary has requested an opinion on this point from the attorney general.——Senate Bill No. 271 for the regulation of scientific experiments on human beings and animals is on first reading in the house.——House Bill No. 141, requiring school teachers to present certificates that they are not affected with any communicable disease, is on second reading.——House Bill No. 414, providing for the sale and distribution of antitoxin under the direction of the State Board of Health, is on second reading.——House Bill No. 495, providing that physicians who attend court as expert witnesses shall be paid the sum of $10 per day, is in the committee on fees and salaries.——The status of other bills affecting the interests of the medical profession is as stated in previous issues of The Journal.

## Chicago.

**Smallpox Decreasing.**—During the week ended April 1, 16 new cases of smallpox were reported. On March 31 there were 85 patients in the Isolation Hospital, but on April 4 there were only 79. Only one death from the disease occurred.

**March Mortality.**—During March the mortality was 2,592, or an annual rate of 15.28 per 1,000. Pneumonia caused 490 deaths: consumption, 316: heart diseases, 188; nephritis, 173; violence, 159; diphtheria, 30; influenza, 23; measles, 32; smallpox, 16, and scarlet fever, 7.

**Deaths of the Week.**—The mortality for the week ended April 1 was 577, equivalent to an annual mortality of 15.11 per 1,000, a slightly lower rate than that for the previous week or for the corresponding week of last year. Pneumonia still led important death causes with 106; consumption caused 69 deaths; nephritis, 56; heart diseases, 43; violence, 36; cancer, 21; whooping cough, 12, and measles, 11.

**Sues State Board.**—Dr. Frederick L. Orsinger, formerly of La Salle, who claims to be a graduate of Zurich, Switzerland, of 1870, and has a diploma from an eclectic institution of April, 1904, has asked that the State Board of Health be compelled by a writ of mandamus to issue to him a certificate to practice medicine in the state. On March 24 the appellant was fined $200 for violation of the medical practice act.

**Health Conditions Relatively Satisfactory.**—Public health conditions at the end of the week and of the month continue fairly satisfactory. There is some decrease of the hospital population, especially of typhoid fever and pneumonia. The worst of the pneumonia season is over and consumption will soon again resume its lead as cause of the greatest number of deaths. Between Nov. 1, 1904, and April 1, 1905—154 days—there were 2,263 deaths reported from pneumonia and 1,384 from consumption. During the corresponding period of 1903-04 there were 2,666, or 403 more, pneumonia deaths, and 1,295, or 89 fewer, deaths from consumption.

## IOWA.

**Left Estate to Hospital.**—Daniel Colbert, Iowa City, who turned over all his property to Mercy Hospital about two years ago, with the provision that he should be cared for at the institution, died March 22.

**Healer Convicted.**—H. C. Weigert, a "magnetic healer" of Waterloo, has been convicted of practicing medicine without a license. The court instructed the jury that if it found that the accused had professed to heal disease, it could find him guilty of practicing medicine without a license, and he was found guilty on that point.

**Personal.**—Dr. Lee Wallace Dean, Iowa City, has been commissioned by the State Board of Control to attend prisoners at the two state penitentiaries who need the care of an ophthalmologist.——Dr. A. C. Moerke has been appointed a member of the State Board of Health and Medical Examiners, vice Dr. John A. McKlveen, Chariton.

**Ottumwa Hospital Dedicated.**—The new hospital at Ottumwa, erected at a cost of $27,250, which represents contributions from 2,324 individuals, was formally dedicated March 24. The medical staff is as follows: Attending—Drs. Lewis J. Baker, George C. Pope, J. B. Wilson, M. W. Pascoe, Murdoch Bannister, Horace W. Roberts, John F. Herrick, F. W. Bowles, Charles E. Huband, Smith A. Spilman, William B. La Force, Edward A. Sheafe and David C. Brockman; consulting—Drs. Lewis J. Baker, Benjamin W. Searle, David C. Brockman, D. A. La Force, Salisbury E. O'Neill and Alfred O. Williams; specialists—Drs. William Hansell, Burdette D. La Force and Austin J. Mummert; advisory board—Drs. David C. Brockman and Alfred O. Williams, and county physician, Dr. F. W. Bowles.

## KANSAS.

**New Hospital Opened.**—St. Francis' Hospital, Atchison, has been opened for the reception of patients. It is undenominational and unsectarian and is open to all reputable physicians.

**Adjudged Insane.**—Dr. L. L. Sowders, West Mineral, who has been subject to epilepsy for several years, due to a blow on the head with a hatchet, has been adjudged insane and committed to the State Hospital at Parsons.

**Communicable Diseases.**—During February 689 cases of smallpox were reported, with 4 deaths; 132 cases of scarlet fever, with 4 deaths; 44 cases of diphtheria, with 5 deaths, and 44 cases of typhoid fever, with 12 deaths.

**State University Medical School.**—By action of the legislature the University of Kansas is enabled to take advantage of a gift of $70,000 by Dr. Simeon Bell, Rosedale, to be used in the erection and equipment of a hospital in connection with the school of medicine of the university. It hopes to have in full operation next fall a full four years' course in medicine. The clinical work will be done at the new hospital at Rosedale.

## MAINE.

**Adjudged Insane.**—Dr. William King, Brunswick, has been adjudged insane and committed to the Maine Insane Hospital, Augusta.

**Hospital Items.**—Bar Harbor Medical and Surgical Hospital has been given an appropriation of $2,000 for 1905, and $2,000 for 1906.——Knox County General Hospital, Rockland, is now open to all "graduate physicians and surgeons in good standing in Knox County" for treatment of patients.——The legislature has made a biennial appropriation of $120,000 for the Eastern Main State Hospital, Bangor.——College Hospital, Saco, has been closed, as it did not prove a financial success.——The secretary of war has transferred to the state for the use of the Maine Insane Hospital, Augusta, the United States arsenal property in Augusta, valued at $200,000.

**Alleged Substitutor Arrested.**—News has been received of the arrest in Portland, Maine, of Dr. Haughton Baxley of Baltimore, on the charge of substituting at an examination before the Maine Board of Registration for Austin Francis O'Malley, a graduate of the Baltimore University School of Medicine. O'Malley was also arrested on the charge of being implicated in a conspiracy against the public health laws of the state. The dispatch states that Baxley made a full confession. The paper which Baxley put in contained his Baltimore address, and this led to detection, since O'Malley had given a Philadelphia address. Baxley is said *to be addicted to cocain and* morphin, and about three years ago was arrested and fined for attempting to shoot a man at Baltimore. He has for some time held the lectureship of histology and pathology at the Baltimore University, but on receipt of this news he was promptly expelled from the faculty.

## MARYLAND.

**Personal.**—Dr. J. Clement Clark, superintendent of Springfield Asylum for the Insane, sailed for England March 29.

**Must Report Tuberculosis.**—The new law requires that all physicians report to the State Board of Health all cases of tuberculosis within seven days on special blanks provided by the board. Such reports are kept secret. The board has provided 30,000 sputum cups, 2,500 metal cup holders and a lot of chemical supplies, in order to deal with the disease.

**Faculty Meeting.**—The Medical and Chirurgical Faculty of Maryland will hold its annual session in Baltimore, April 25, 26 and 27. The opening session will be devoted to the presidential address by Dr. E. N. Brush. Dr. Clarence J. Blake will open the Wednesday evening session with an address on "Co-operation in Medical Teaching," followed by three short papers illustrating the benefits to the community of medical science, Dr. W. H. Welch speaking for preventive medicine, Dr. I. E. Atkinson for practical therapeutics and Dr. Robert W. Johnson for surgery. The annual oration will be delivered on Thursday at 4:30 p. m. in McCoy Hall by Dr. William Osler, and will be followed by the annual dinner. Members of the faculty will be entertained by the president, Wednesday afternoon, at the Sheppard and Enoch Pratt Hospital, Towson, when the new hydropathic establishment will be formally opened.

### Baltimore.

**Last Week's Statistics.**—There were reported for the week ended April 1, 196 deaths, 164 births, and 160 cases of measles.

**New Hospital and Dispensary.**—Announcement is made that Drs. William S. Gardner, Albertus Cotton, Lee Cohen, J. Williams Lord, Edward Bernstein and Arthur G. Barrett are about to found a hospital and dispensary in the northwestern part of the city.

**Personal.**—Dr. Percy M. Dawson was knocked down on the street by a negro rough, March 26.——Dr. Harvey W. Cushing was elected vice-president of the Yale Alumni Association of Maryland, March 31.——Dr. Albert K. Hadel is critically ill with paralysis and pneumonia.

**Fund for Fighting Mosquitoes.**—Dr. Howard A. Kelly is raising a fund for the purpose of fighting the mosquitoes here this summer. About $300 is needed. The services of Mr. T. H. Coffin, an expert on mosquitoes, have been secured and he will make a thorough investigation of local conditions.

## MASSACHUSETTS.

**Personal.**—Dr. Edward S. Wood, professor of chemistry at Harvard University Medical School, is convalescing from an exploratory laparotomy done at the Corey Hill Hospital, Brookline.

**Against Leprosarium.**—The committee on public institutions of the state legislature has reported against the passage of a bill providing for the establishment of a hospital for persons afflicted with leprosy or other contagious disease.

**Moth a Nuisance.**—The boards of health of Boston, Salem and Waltham have declared the brown-tail moth a public nuisance and a menace to the public health. This means that citizens, when notified of its presence on their property, must abate the nuisance or be liable to a fine.

**Public Institutions Report.**—For the year ended Jan. 31 1905, 960 cases were examined medically by the Boston Public Institutions Department. Of these 958 were committed, 552 to insane hospitals, 314 to the Observation Hospital on Deer Island, and the others to the state epileptic and dipsomaniac hospitals.

**Meningitis Alarms Public.**—Considerable anxiety among the general public, fostered if not produced by the sensational daily press, has been aroused in and about Boston because of the unusually large number of cases of cerebrospinal meningitis reported since January 1. Many towns and cities have made the disease returnable as one of the contagious diseases. Cambridge has ordered sealed caskets and Somerville requires private funerals. In the latter city one school was temporarily closed for fumigation. The disease is, however, very far from epidemic. Up to the end of March there were 87 deaths from the disease reported in the state, as against 55 in 1904 and 65 in 1903 for the same period.

## MICHIGAN.

**Personal.**—Dr. Ralph P. Beebe, health officer of Kalamazoo, was thrown out of a sleigh into a barbed wire fence and sustained severe scalp wounds.——Dr. Mary Elizabeth Morse, Baltimore, has been appointed to the house staff of the Eastern Michigan Asylum, Pontiac.——Dr. Benjamin P. Brodie has started on a trip around the world.

**Takes Cushny's Place.**—Dr. Charles W. Edmunds, Ann Arbor, who for three years has been instructor in pharmacology in the University of Michigan, has been placed in charge of the department of materia medica and therapeutics for the balance of this year, temporarily assuming the position held by Professor Cushny previous to his recent departure for England.

**Antituberculosis Society Organized.**—At the close of a lecture by Dr. S. A. Knopf of New York City on "How to Combat the Great White Plague, or Tuberculosis," March 21, the Detroit Society for the Prevention and Cure of Tuberculosis was organized, with Mr. S. T. Douglass, temporary chairman, and Dr. Edwin S. Sherrill, temporary secretary and treasurer.

**Law Not Retroactive.**—An important ruling of state interest was handed down by Judge Coolidge March 29, at St. Joseph, deciding that the law of 1903, aimed at quack and freak doctors, did not apply to persons practicing medicine without a license prior to that time. This was decided in the case of the People vs. John Fabry, charged with practicing medicine without a license.

## MINNESOTA.

**Accidents.**—Dr. James A. Quinn, St. Paul, lost the index finger of his right hand from the accidental discharge of a revolver.——Dr. O. Wellington Archibald, St. Paul, has been suffering severely from the effects of chrysophanic acid poisoning of the eye.

**Said to Have Exposed Smallpox Patient.**—Drs. Henry E. Wunder, Tower, and James Fowler, Soudan, have been found guilty of exposing to the public a smallpox patient whom they sent to Duluth. The defense was that the defendants did not recognize the disease.

**Smallpox at Argyle.**—Argyle is said to attribute the rapid spread of smallpox in the last two weeks to the fact that a local practitioner did not understand the use of the capillary tubes of vaccine virus, and attempted to force the virus through the needle, which he supposed was hollow.

**Entomologist Wants Maggots from Human Subjects.**—State Entomologist F. L. Washburn, St. Anthony Park, will be grateful to any one who will send him live specimens of dipterous parasites, "maggots" or "bots" found in human subjects. They may be packed in moist cotton or in earth. His desire is to rear these parasites and establish their identity for the furthering of knowledge along this line.

## NEW YORK.

**Coroner's Bill Reported.**—The Elsberg coroner's bill has been favorably reported from the senate cities committee without amendment and is now in shape to be passed.

**Do Not Report.**—Health Commissioner Greene complains that Buffalo physicians are lax in reporting some of the infectious diseases, such as mumps, and that many do not report births.

**Illegal Practitioner Convicted.**—Louisa Busch was arrested on a charge of practicing without a license. She pleaded guilty in police court, was convicted, but sentence was suspended.

**Disease from X-Ray.**—With the purpose of overcoming a diseased condition of the left hand caused by the continuous use of the *x*-ray, Dr. Clarence A. Greenleaf, Rochester, has discontinued practice and will go to Cayuga Lake to spend the summer.

**Bills Signed by the Governor.**—Senator Carpenter's bill authorizing White Plains to appropriate $1,500 a year for the White Plains Hospital Association, and a bill prohibiting the use of methyl or wood alcohol for adulterative purposes have been signed by the governor.

**Appropriation Assured.**—An appropriation of $18,000 is assured for the State Cancer Laboratory, situated at Buffalo. This is $3,000 more than was appropriated last year. Experiments similar to those already reported for inoculation of the disease and formation of a serum are to be made on chimpanzees.

### New York City.

**Out on Bail.**—Dr. Edward E. Conrad, who was convicted of attempted abortion and has been in the Tombs pending appeal, has been released on $16,000 bail.

**To Take Census.**—Commissioner Darlington has appointed 150 health inspectors from the civil service eligible list to make an enumeration of the congested districts of the city and work will be begun immediately.

**Measles Epidemic Due.**—The Health Department has asked for $4,500,000, and the Board of Estimate has granted $1,000,000 as a temporary arrangement. The health board announces that an epidemic of measles is due, that they expect to have at least 20,000 cases and that they need larger facilities.

**Contagious Diseases.**—There were reported to the Sanitary Bureau for the week ended March 25, 576 cases of tuberculosis, with 198 deaths; 379 cases of measles, with 9 deaths; 294 cases of diphtheria, with 38 deaths; 258 cases of scarlet fever, with 13 deaths; 167 cases of cerebrospinal meningitis, with 85 deaths, and 180 cases of varicella.

**New Hospital Committee.**—In accordance with action taken at the conference on hospital needs and hospital finances, held on March 23, the president of the New York Association for Improving the Condition of the Poor has appointed a committee of twelve to consider propositions looking to the welfare of the city's hospitals and has called a meeting for organization.

**The Meningitis Epidemic.**—The week ended March 30 shows an increase of 600 per cent. in the number of deaths from this cause over the corresponding week of last year. Since March 25 the number of deaths has averaged 22 a day. There are 19 cases in the hospitals of the Bronx, and the superintendent of one of the hospitals said they were admitting on an average one case daily. Six victims are reported in one family.

**Is St. Vitus' Dance Increasing?**—A physician in charge of nervous diseases in children in the Presbyterian Hospital states that this disease is more prevalent than formerly. This is attributed to the fact that children are made nervous by overstudy. This announcement follows closely on that of *Physical Director Gulick, who complains that children of delicate constitution are given curvature of the spine by carrying too many books to and from school.* These statements have been presented to the Board of Education and a committee of physicians will be appointed to investigate their truth.

## NORTH CAROLINA.

**Examiners Meet in May.**—The Board of Medical Examiners *of the State of North Carolina will meet in Greensboro,* May 17 to 23.

**Osteopathic Bill Fails.**—The osteopathic bill failed to pass the legislature, thanks to the organization of the profession of the state on the plan suggested by the American Medical Association.

**Deaths for January.**—The total number of deaths reported in January was 235, equivalent to an annual death rate of 18.8 per 1,000. Consumption caused 39 deaths; pneumonia, 37, and heart diseases, 21.

**Medical Staff of National Guard.**—The following appointments to the medical department of the national guard are announced: Surgeon-general, Col. Baxter R. Hunter, King's Mountain; deputy surgeon-general, Lieut.-Col. Charles S. Jordan, *Asheville; majors and surgeons, Drs. Andrew L. Pendleton, Elizabeth City; Eugene H. Brooks,* Reidsville; Frank H. Holmes, Clinton, and Eugene B. Glenn, Asheville; captains and assistant surgeons, Drs. A. R. Winston, Franklinton; Parks McC. King, Charlotte, and W. T. Parrott, Kinston; and first lieutenants and assistant surgeons, Drs. E. Crawford Boyle, Mount Holly, and B. J. Witherspoon, Jr., Charlotte.

## PENNSYLVANIA.

**Smallpox at Mount Union.**—Many cases of smallpox have appeared at Mount Union during the past week.

**Idiocy Bill Vetoed.**—The governor has vetoed the bill for the prevention of idiocy which was mentioned in The Journal April 1. He said if idiocy could be prevented by the act of assembly, this course would surely have been adopted and such an act passed and approved by the state, and, furthermore, that such laws would be enacted in all civilized countries. He said the title of the bill is imperfect, because it does not clearly set forth its purpose. Of the operation, he said the nature of the operation should be described instead of leaving it to the judgment of the board and allowing them to decide as to the safest and most effective method of treatment.

**Later Tuberculosis *Legislation.***—The two bills *to* establish two state sanatoria *for indigent cases of incipient* tuberculosis and appropriating $400,000 for this purpose, have been amalgamated into one, and instead of putting the two institutions into the hands of the *forestry* commissioner exclusively, the new bill calls for the appointment of a commission of three, consisting of two physicians and the forestry commissioner, who are *to serve later as trustees for the* institutions. One sanatorium is to be located near the south center of the state and near the state sanatory camp near Mont Alto, which was founded in 1903, and the other *in the* western part of the state, both being built on forestry reserves, thus permitting the entire appropriation to be used for buildings, equipment and maintenance. *The appropriation for the* institutions has been reduced from $400,000 to $300,000. The bill has passed both legislative *bodies and now awaits* the governor's signature. It is undoubtedly the indirect outcome of agitation begun years ago by the Pennsylvania Society for the Prevention of Tuberculosis, and regularly and intermittently renewed through the public press, public meetings and direct appeals to the legislature. The recent advocacy by the Philadelphia County Medical Society of a $500,000 expenditure by the state for the care of the tuberculous poor has also been largely responsible for this adequate approximation to a beginning at least in the public support of indigent consumptives.

### Philadelphia.

**Bequest.**—By the will of Meyer Guggenheim of New York $20,000 is devised to the Jewish Hospital Association of Philadelphia.

**Personal.**—Dr. Joseph Leidy, who has been spending several weeks in Europe, returned home March 29.——Dr. Henry Leffman addressed the Engineers' Club, April 1, on "Sanitation in Office Buildings."

**Examinations for Internes.**—A competitive examination for six resident internes for St. Joseph's Hospital will be held at the hospital May 1, at 6 p. m.——Examination for two resident physicians at the Reading Hospital will be held in the Hotel Walton, Philadelphia, April 11. Applications should be made to Dr. Israel Cleaver, Reading, Pa.——Examination for resident physician for the Phoenixville *Hospital* will be held at the hospital, April 22.——The annual examination for resident physicians to the Episcopal Hospital will be held April 13 and 14. The term of service is 18 months. Applications should be *made to Ewing L. Miller, Twelfth and Walnut* streets.

**Health Report.**—The total deaths for the week ended April 1 numbered 545, an increase of 14 over last week, and a decrease of 53 from the corresponding week of last year. Typhoid fever still prevails, but the new cases, 231, show a decrease of 75 cases compared with those of last week; the deaths resulting from the disease were 32, or 15 more than last week. From March 4 to April 1 1,054 cases of typhoid existed in the city, and 91 deaths occurred. The principal causes of death were as follows: Typhoid fever, 32; tuberculosis, 58; cancer, 17; apoplexy, 36; heart disease, 49; acute bronchitis, 12; pleuropneumonia, 49; bronchopneumonia, 21; *Bright's disease, 46; enteritis, 27, and cerebrospinal meningitis,* 4. Measles and chicken-pox are prevalent. There were 50 new cases of each disease reported, and 3 new cases of cerebrospinal meningitis were also reported. In all there were 327 *cases of contagious disease reported, with 37 deaths, as* compared with 369 cases and 27 deaths for the preceding week.

## SOUTH DAKOTA.

***Hospital* Addition Completed.**—The addition *to* St. Luke's Hospital, Aberdeen, which practically doubles the capacity of the institution, has been completed and equipped, at a cost of $20,000.

**Unlicensed Practitioners Fined.**—Drs. W. C. Hamilton, Iona, and Antranig T. Ishkanion, Oacoma, have each been found guilty of practicing medicine without a license, and a fine of $50 was imposed in each case.

**Battle Mountain Sanitarium.**—The Army Sanitarium at Hot Springs will be ready for occupancy January 1 next. An additional appropriation of $32,500 has been secured for officers' quarters and a conservatory. The establishment will accommodate 450 patients.

## TENNESSEE.

**Commencement.**—The annual graduating exercises of the Department of Medicine of the University of Nashville were held March 31.

**Surgical Amphitheater Burns.**—The amphitheater for surgical *clinics* at the Medical Department of the University of Tennessee, Nashville, erected in 1899, was destroyed by fire March 13, and the lecture room was damaged. The fire loss is estimated at $15,000.

***Personal.***—Dr. William A. Applegate, Chattanooga, has been appointed chief surgeon of the Southern Railroad Company.——Dr. William G. Ewing has been appointed chairman of the Nashville Water Supply Commission.——Dr. Kirby S. Howlett, Franklin, was thrown from his buggy March 10 and bruised about the head.——Dr. J. Sinclair Dye has been reappointed city physician of Chattanooga.——Dr. James Foster Scott, Jr., *has been reinstated as city physician of Knoxville.*

**Staff Changes.**—The following changes in the staff of the Knoxville General Hospital are announced: Dr. *William R.* Lockett, pathology; Dr. Henry P. Coile, medicine, vice Dr. Charles P. McNabb; Dr. William R. Cochrane, surgery; Dr. Charles E. Lones, gynecology, vice Dr. Samuel M. Miller; Dr. *Drake, surgery, vice* Dr. Walter S. Nash; Dr. Howard A. Ijams, obstetrics, vice Dr. Samuel L. Jones; Dr. Claudius M.

Capps, eye, ear, nose and throat, vice Dr. Benjamin F. Young; Dr. Douglas Caulkins, children, vice Dr. Ernest R. Zemp, and Dr. Charles E. Ristine, pathology.

## TEXAS.

**Graduates Seventeen.**—A class of 17 received diplomas at the commencement exercises of the College of Physicians and Surgeons, Dallas, March 23.

**Physiomedical Bill Defeated.**—The house bill creating a physiomedical examining board was practically killed by postponing its consideration until April 6.

**Accident.**—Dr. F. Early Young, San Antonio, while on his way to West Point, fell between two cars on a passenger train at Sandy Fork, breaking an arm and a clavicle.

**Cornerstone Laid.**—The cornerstone of the new building for the Medical Department of Southwestern University, Dallas, was laid by Bishop Hess with appropriate ceremonies, April 3. The building is expected to cost $50,000.

## VERMONT.

**Verdict for Mistaken Arrest.**—Dr. Ashbel P. Grinnell, Burlington, dean of the Vermont Medical College, has just received a verdict awarding him $10,000 for false arrest and imprisonment, which occurred in New York City four years ago, when he was mistaken for some one else.

**Did Not Report Disease.**—Dr. Nicholas J. Delahanty, Rutland, was fined $10 and costs, amounting to $23.33, for violating the state law requiring physicians to report cases of communicable diseases. The defendant stated that he did not consider that membranous croup was diphtheria and filed an appeal.

## VIRGINIA.

**Hospital Wing Opened.**—The new wing of the University of Virginia Hospital, Charlottesville, erected at a cost of $35,000, has been informally opened, in the presence of many alumni of the university medical department.

**Personal.**—Dr. William F. Creasy has been reappointed quarantine officer of Newport News.——Dr. John B. Fisher, Midlothian, has been designated as a life member of the board of visitors of the Medical College of Virginia, Richmond, vice Dr. Thomas P. Matthews, Manchester, deceased.——Dr. Robert M. Wiley, Salem, has been made president of the Roanoke County Board of Health, vice Dr. Oscar Wiley, deceased.

**Cocain Prescribers and Sellers in Trouble.**—Drs. B. H. Sparks and Allen B. Montz, Charlottesville, who, it is alleged, have been giving indiscriminate prescriptions for cocain, have been notified that this practice should be discontinued.——Dr. A. G Skelton, Bloodfield, has been fined $8.50 for selling cocain to negroes and has been committed to jail. He was convicted by a negro justice of the peace and intimates that the Circuit Court will investigate the matter.——S. J. Simmons, a druggist of Rivermont, was fined $100 in each of three charges of selling cocain. Jim Faulkner, convicted of buying cocain from Simmons and selling it to boys, was fined $25 and advised to leave the state for a year on pain of imprisonment.

## WISCONSIN.

**Money for Hospital.**—Gifts of cash amounting to nearly a thousand dollars were received at the annual donation day of the Mount Sinai Hospital, Milwaukee.

**Personal.**—Dr. Gilbert E. Seaman, Milwaukee, has been commissioned major and surgeon in the Wisconsin National Guard, and has been assigned to the First Infantry, vice Dr. Joseph B. Whiting, Jr., Janesville, deceased.

**Physicians Pay for Mistake.**—Drs. Thomas W. Nuzum and Arick Sutherland, Brodhead, against whom Paul Parkhurst brought suit for $10,000, contending that the defendants had operated on the wrong foot, have settled the case for $5,000.

**Smallpox Alarms.**—Kenosha is alarmed because Bristol, 12 miles west, has 9 cases of smallpox.——Smallpox has broken out among the Chippewa Indians on their reservation near Ashland.——Two students of Milwaukee Medical College have been removed to the Isolation Hospital.

## GENERAL.

**Dinner to Dr. Osler.**—As stated in The Journal, March 25, page 969, a farewell dinner will be given to Dr. William Osler at the Waldorf-Astoria, New York City, at 7:30 p. m., May 2. Invitations to subscribe may be obtained of the chairman, Dr. James Tyson, 1506 Spruce Street, Philadelphia, until April 20.

**Anniversary of Frederick Stearns & Co.**—The current issue of the *New Idea* commemorates the fiftieth anniversary of the founding of the house of Frederick Stearns & Co., devoting considerable space to the history of the institution, to the extent and character of the business and to the personnel of the present executive staff. The article relates that Frederick Stearns, the founder of the firm—who, at the age of 14, had begun his career in the drug business as a drug store apprentice—came to Detroit in 1885, started a drug store and began to manufacture pharmaceuticals for the trade in a back room twelve feet square. The numerous illustrations include pictures of various members of the staff and of the various buildings successively occupied by the firm from the earliest date up to the present immense plant. We congratulate Mr. Stearns and the firm on this semi-centennial.

**New Professors of Medicine at Johns Hopkins.**—Professor Osler's resignation, which goes into effect next month, has led to the appointments just announced of Lewellys Franklin Barker of Chicago as professor of medicine and of William Sydney Thayer of Baltimore as professor of clinical medicine in the Johns Hopkins University and Hospital. Like his former teacher and predecessor, Professor Barker is a Canadian by birth. He was born in Norwich, Ontario, Canada, Sept. 16, 1867. The principal events in his medical career may be epitomized as follows: M.B., University of Toronto, 1890; licentiate College of Physicians and Surgeons of Ontario, 1890; house officer, Toronto General Hospital, 1890-1; assistant physician, Johns Hopkins Hospital, 1891-2; fellow in pathology, Johns Hopkins University, 1892-4; associate in anatomy, ibid., 1894-7; student, University of Leipzig, 1895; assistant resident pathologist, Johns Hopkins Hospital, 1894-9; associate professor of anatomy, Johns Hopkins University, 1897-9; Johns Hopkins medical commissioner to the Philippine Islands, 1899; associate professor of pathology, Johns Hopkins University, 1899-1900; resident pathologist, Johns Hopkins Hospital, 1899-1900; professor and head of the department of anatomy in Rush Medical College and the University of Chicago, 1900-05. The most noteworthy work accomplished during the Baltimore apprenticeship is embodied in his work on "The Nervous System and Its Constituent Neurones" (D. Appleton & Co.), in which are explained and discussed, on the basis of personal study and with the clearness that comes only from perfect mastery of the complex subject, the newer knowledge and conceptions of the nervous system. The book has been an important factor in popularizing this knowledge. Professor Barker's interest in neurology included from the first all aspects of the subject and several articles on clinical and pathologic problems in neurology have appeared from him. Among other contributions from this period are studies of the pathologic changes in malaria, iron in eosinophile cells, pyocyaneus infections, etc. In the fall of 1903 Professor Barker married Miss Lillian Halsey of Baltimore. The following year was spent in travel and study in Europe; several months were passed in the clinic of Fr. Müller of Munich and in the chemical laboratory of Emil Fischer in Berlin. Our readers have had full opportunity to become familiar with Professor Barker's European observations and reflections through the interesting letters he sent to The Journal. Last fall a preliminary step was taken to cast his lot definitely with internal medicine when he accepted an appointment as professor of medicine in Rush Medical College and began to give clinical instruction in nervous diseases. And now, after this brief career as an actual clinical teacher in Chicago, comes the call to return to Baltimore.——William Sydney Thayer, who has been appointed professor of clinical medicine, was born in Milton, Mass., June 23, 1864. He received his A.B. at Harvard in 1885, and graduated from the medical department of the same university in 1889. He served as resident physician in the Johns Hopkins Hospital from 1891 to 1898; was appointed associate in medicine in the Johns Hopkins University in 1895, and advanced to associate professor about 1897, and has for some time been chief of the medical clinic in the hospital. Professor Thayer has made several substantial contributions to medical literature. His best known work deals with various phases of malaria, and Thayer and Hewetson's monograph on malaria is the standard English work on this disease. His interest and active work in malaria and blood diseases have stimulated others to undertake successfully research in this field. Following the example of his illustrious chief, Professor Thayer has busied himself with medical biography, especially of the French teachers and leaders in internal medicine who lived in the early part of the last century. All his work is marked by great thoroughness, ability and genuine scholarship. On resigning his position as resident physician Professor Thayer became married and took up private practice in Baltimore in addition to his duties as teacher of medicine. He has been a frequent attendant on the meetings of the American Medical Association and in 1903 he was chairman of the Section on Practice of Medicine. He delivered one of the addresses on medicine at the International Congress of Arts and Science in St. Louis last fall.

## CANADA.

**Joint Meeting of Medical Societies.**—There will be held in Winnipeg, Man., April 7, a joint meeting of the Southern Medical Association of Manitoba and the Winnipeg Medical Association.

**Deaths in Montreal.**—In 1900 the deaths in Montreal numbered 7,351; in 1901, 6,915; in 1902, 7,954; in 1903, 6,895. The deaths from tuberculosis in 1900 amounted to 692; in 1901, 647; in 1902, 644; in 1903, 633. The statistics for the week ending March 25 show 129 deaths in the city and 155 births.

**Personal.**—Dr. A. E. Vipond, Montreal, who has been in Europe for the past year and a half, has returned home.——Dr. J. F. W. Ross has returned to Toronto after spending three months in southern California, Texas, New Orleans and St. Augustine, Fla.——Dr. George R. McDonagh, professor of laryngology and rhinology in the University of Toronto, is returning from Italy after a two months' vacation.——Dr. A. P. Proctor, Kamloops, B. C., one of the members of the British Columbia Medical Council, has removed to Vancouver and will practice there.——Dr. Simon J. Tunstall, Vancouver, has been elected president of the British Columbia Graduates' Society of McGill University, and Dr. W. J. McGuigan, formerly mayor of that city, has been re-elected secretary.——Dr. John Stewart, Halifax, N. S., president of the Canadian Medical Association, which meets in that city in August, has been spending two weeks in Montreal and Toronto in the interests of the coming meeting.

## FOREIGN.

**South African Medical Congress.**—The South African Medical Congress will be held at Pietermaritzburg, Natal, June 12-17, 1905, under the auspices of the Natal branch of the British Medical Association.

**Cholera Congress at Moscow.**—The latter part of March witnessed a large gathering of Russian physicians and hygienists at Moscow to discuss the epidemiology, pathology, treatment, prophylaxis, etc., of cholera.

**Government Control of Drug Business in Japan.**—It is stated in the *Public Health Reports* that a bill has been introduced in the Diet proposing legislation of a stringent character having for its object the more strict control of the drug business.

**Emile Zola Home for Convalescent Nurses.**—Zola's widow has presented her property at Médan to the *Assistance Publique*, which will fit it up and maintain it as a convalescent home for women nurses. Zola's study will be kept intact for sightseers.

**Bill to Regulate Ads of Secret Medicines in Germany.**—An appeal was recently presented in the German reichstag, indorsed by both the liberal parties, which petitioned the authorities to regulate the sale and advertisement of medicines whose composition is kept secret.

**Wirtinger's Jubilee.**—Dr. J. Wirtinger of Vienna—sometimes called the father of the clinical thermometer—celebrated on March 2 the fiftieth anniversary of his attaining his medical degree. He published in 1865 his first large work on the use of the thermometer in the clinic.

**Floating Sanatorium.**—The Hamburg-American Line has launched a twin-screw steamer of 8,600 tons, specially designed as a floating sanatorium. It starts on its first trip from Hamburg July 8, and will cruise around Scotland and Norway for twenty-six days.

**Plague in Australia.**—During February, according to the *Public Health Reports*, several cases of plague were found in and near Brisbane. Two of the patients were employed in a warehouse in removing matting and other wrappings from goods imported from Hongkong.

**Plague in Chili.**—In Pisagua, a seacoast city with a population of about 4,000, the outbreak of plague has assumed such proportions that the health authorities are incapable of dealing with the situation or even burying the dead. According to the *Public Health Reports*, the bodies in many cases are left in the places where death occurred.

**The Father of Hydrotherapy.**—Abroad this title is generally conferred on Prof. W. Winternitz of Vienna, whose seventieth birthday was celebrated March 1. He has been docent of hydrotherapy at Vienna for forty years, and founded his hydrotherapeutic establishment before that date. He has been publishing since 1890 a monthly, *Blätter f. klinische Hydrotherapie*, and is a frequent contributor to medical journals on hydrotherapy, dietetics and allied subjects.

**From the Seat of War.**—The *St. Petersburg. med. Wochft.* states that it is supposed that the flying column and hospital in charge of Zoege von Manteuffel has fallen into the hands of the Japanese, with a number of other physicians and hospital corps. The number of wounded "evacuated" from the hospitals around Mukden between February 15 and 28 is stated in the official report to have been 1,379 officers and 56,722 privates.

**Spittoons in Public Places at Buenos Ayres.**—The regulations at Buenos Ayres call for spittoons mounted on standards or fastened in the wall at a certain height from the floor, in all schools, colleges, theaters or other public places, the number proportional to the attendance. They must each contain water or some disinfectant. Above every cuspidor is a placard with the words: "Hygienic cuspidor. For reasons of public health it is forbidden to spit on the floor."

**The Helmholtz Medal.**—About the time that the world was doing homage to the father of laryngoscopy at London, another son of Spain was being honored by the presentation of the great gold Helmholtz medal from the Academy of Sciences at Berlin. This medal was endowed as a prize for work bearing directly on ophthalmology. It was first presented to the distinguished Dutch ophthalmologist, Donders, and was awarded this year to Ramon y Cajal of Madrid for his research on the optic chiasm.

**International Congress on Industrial Accidents.**—This international gathering will convene at Liège, Belgium, May 29 and will adjourn June 4. The opening of the congress will coincide with the coming into force in Belgium of the new law in regard to compensation for accidents to workingmen. Among the subjects appointed for discussion are "Traumatic Neuroses," "Malingering and Voluntary Aggravation of Results of Accidents," and the "Basis for a System of International Statistics of Industrial Accidents." The congress is under government auspices, and Dr. Poels, Marie Thérèse 2, Brussels, is the secretary.

**Teaching of Hygiene in British Schools.**—A system of instruction in hygiene has been prepared by a committee of physicians and recommended for use in the public schools of the United Kingdom. This action is the outgrowth of the agitation in 1903 on what was called the national physical deficiency and which was in part attributed to the use of alcoholic drinks and narcotics. In 1904 a committee of thirty-one British physicians issued a petition for public school study of hygiene and temperance. Over 15,000 physicians indorsed this plan. The committee included Sir Thomas Barlow, Sir Lauder Brunton, Sir Victor Horsley, Sir William Macewen, Sir Henry Thompson, Prof. G. Sims Woodhead and others. The system adopted is based on that in use in the schools of many of the states.

**The Roentgen Congress at Berlin.**—The Journal announced some months ago that great preparations were being made for a congress and exhibition this spring to celebrate the tenth anniversary of the discovery of the *x*-rays. A critical retrospect over what has been accomplished in these ten years in roentgenology, and the presentation of the actual status of technic, achievement and prospects have been planned for April 30 to May 3. The exhibition will be held in the Ressource building, Oranienburgerstrasse 18, Berlin. Professor Roentgen, of course, is to be the guest of honor. His statue has recently been installed on one of the city bridges. The German Congress of Surgery and of Orthopedic Surgery will immediately precede the Roentgen Congress, and the Congress of Internal Medicine will meet at Wiesbaden a fortnight before.

**German Society for Social Medicine, Hygiene and Medical Statistics.**—The first scientific meeting of this new organization was held at Berlin last month. The question of medical certificates in case of industrial accidents and the claims for indemnity based thereon was discussed by a high government official. Dr. Gottstein exhibited tables, made from the material collected by a life insurance society, which showed that the relations between the chest measure and the height afford reliable presumptive data for estimation of the tendency to pulmonary tuberculosis. Another physician presented charts which showed the minimum eyesight required in various vocations. These tables were compiled for the purpose of guiding the young in their choice of a life vocation, warning them away from careers for which their visual acuity is not sufficient.

**Smallpox in Shanghai.**—The situation in Shanghai has become so acute that it is a menace to the entire shipping of the Orient. Eight vessels are already known to have carried smallpox from that port, and the true number is no doubt far in excess of the figures given. Acting Assistant-Surgeon C. A. Ranson has been asked to vaccinate all crews and steerage passengers before permitting vessels to proceed to ports of the Philippine Islands. According to the *Public Health Reports* the infection has even been conveyed aboard vessels which anchor at Woosung, a distance of 14 miles from Shanghai and from which the passengers are reported not to have left the vessel. In such cases the infection was no doubt carried aboard by the Chinese stevedores. Health authorities consider the situation sufficiently serious to warrant calling the attention of all quarantine officers stationed at United States ports to the liability of smallpox infection being present on vessels that have touched at the port of Shanghai.

**Laryngology at the Approaching International Medical Congress.**—A large number of prominent laryngologists from various countries attended the Garcia centenary celebration as delegates from various societies or as guests of the committee in charge. They took advantage of the opportunity to discuss the question whether to hold independent international congresses of laryngology or to be content with a special section in the international medical congresses. The matter has been brought up before and each time it has been decided that the opportunity afforded by the international medical congresses was sufficient. Great dissatisfaction was expressed, however, with the regulations of the approaching Lisbon congress, which has grouped rhinology, otology and stomatology with laryngology, the four forming Section XII. It was definitely agreed that unless the committee of organization change this state of affairs and give laryngology a more distinct position, the delegates assembled would take no part in the congress, and would use their influence to the same effect in the societies which they represented.

## LONDON LETTER.

### Hospital Economies.

Much attention has lately been devoted to the cost of the maintenance of hospitals. In 1903 the committee of the Hospital Sunday Fund reduced their awards to the 38 London hospitals on the grounds that the average cost of treating the in-patients was too high. The committee of the National Hospital for the Paralyzed and Epileptic at once made a systematic attempt to effect reforms. Although their expenditure was much lower than that of most of the institutions condemned, they commenced an inquiry into details and into the direction in which saving might be effected. As a result the cost per bed was reduced from $470 to $405 per annum. The change introduced effected a saving of $8,450 in the yearly domestic expenditure and of $1,000 in the expenses of the surgery and dispensary. These results were largely due to the help of ladies. A committee was appointed consisting of the matron of the hospital and six other ladies connected with hospitals and poor law institutions. By their advice the period of meat contracts was lengthened and town-killed foreign beef was substituted for English beef; the prices of fish, fowls, bacon and milk were reduced, and a method of purchasing vegetables and fruit based on taking advantage daily of the condition of the market was instituted. The ladies showed that the system of cutting bread for patients occasioned waste; that the cooking ovens were not the best suited for the work; that the employment of a skilled carver in the kitchen, instead of carving the joints in the wards, would effect large economies; that much cheaper crockery than that used would answer all ordinary purposes; that some electric light lamps were of unnecessarily high candle-power and badly distributed; and, finally, that it would be more economical in every way to employ a female housekeeper than a steward. The economies in the surgery and dispensary were due to the assistance of the medical staff, which was invited. Another fact which shows that there is a want of economy in the management of the London hospitals is the great variations in the cost of maintenance of them and the much higher figures of London than of Scotland. A man who was requested to subscribe to the London Hospital brings out this fact very well in a letter to the *Times*. He asked for a copy of their annual report and compared the cost of maintenance with that of the Dundee Royal Infirmary and found it to be twice as great. A higher cost was to be expected in London, but not such a difference. The following is the annual cost of maintenance per bed in a number of institutions (excluding out-patients): London Hospital, $530; Charing Cross Hospital, $495; Guy's Hospital, $515; Middlesex Hospital, $472; St. George's Hospital, $725; St. Thomas' Hospital, $568; Royal Infirmary, Aberdeen, $246; Royal Infirmary, Dundee, $228; Royal Infirmary, Edinburgh, $310; Royal Infirmary, Glasgow, $318; Royal Infirmary, Liverpool, $278; Royal Infirmary, Manchester, $323; General Infirmary, Leeds, $366.

### The Garcia Centenary.

The one hundredth birthday of Don Manuel Garcia, the discoverer of the laryngoscope, who is living in London, has been fitly celebrated by the homage of the scientific and medical worlds. The old man is still wonderfully hale and was able to attend and to take part in the various functions held in his honor. The formal celebration took place at midday at the Royal Medical and Chirurgical Society's house in Hanover Square, which was crowded with delegates of universities, learned bodies, laryngologic and musical societies, and old friends. Among those present were the Spanish chargé d'affaires, Madame Garcia (wife), and Miss Garcia (daughter), Professor Fraenkel (representing the Prussian secretary of state for public instruction), Sir Felix Semon, Sir W. Broadbent, Mr. Sargent, R. A., Sir A. Mackenzie, Mr. Macfarren, Mr. Santley (the singer). On entering Signor Garcia was greeted with loud cheers. He wore the insignia of the Honorary Commandership of the Royal Victorian Order which had just been conferred on him by the king. He looked remarkably well and took a lively interest in the proceedings. He sat alone on a chair of state on a dais in full view of the company. Sir Felix Semon, chairman of the Garcia committee, in opening the proceedings announced that the king had just received Garcia at Buckingham palace in order to present his congratulations and to express his recognition of all that the old man had done for medicine and music. At the conclusion of the interview the king expressed a wish to be personally represented at the banquet that night and delegated his lord-in-waiting, Lord Suffield, to attend. The Spanish chargé d'affaires delivered a congratulatory message from the Spanish government and invested Garcia with the Royal Order of Alfonso XII. Professor Fraenkel said that the man whom they were assembled to honor had devoted his best days to the teaching of singing and had not been content to discover the secrets of voice culture by sound alone, but had proceeded in a thoroughly scientific way. His genius had thrown light on the hitherto dark place of the larynx and the source of the living human voice. He had thereby laid the foundation of the physiology of the voice. On behalf of the German emperor he conferred on him the rarely awarded distinction of the great gold medal for science. An address from the Royal Society was presented by the principal secretary, Sir Archibald Geike, Professor Darwin and Professor Halliburton. Other addresses were delivered from the University of Koenigsberg, the Victoria University of Manchester and the Medical Faculty of Heidelberg. An address was delivered from Garcia's old pupils, among whom are included Madame Marchesi and Mr. Santley. Mr. Otto Goldschmidt, the husband of Jenny Lind, said that his wife to the end of her days continued to venerate Senor Garcia. An address from the Royal Academy of Music was followed by one from the Royal College of Music. Addresses from laryngologic societies all over the world were then read. Among those represented were the American Laryngological Society and the Section of Laryngology of the New York Academy of Medicine. Congratulatory telegrams were received from the Moscow Laryngological Society and the Medical Society of Japan. The program was brought to a conclusion by the presentation to Garcia of his portrait, painted by Mr. Sargent, which was subscribed for by international admirers. In the evening Garcia was entertained at a banquet at which more than 400 persons were present. Sir Felix Semon proposed his health and related the history of the discovery of the laryngoscope. Garcia, who was almost overcome by emotion, responded, but after delivering a few sentences he was evidently somewhat exhausted and handed the manuscript of his speech to the chairman, who read the remainder. He was also able to attend a dinner party given by Sir Felix Semon at the German Club, where he told many interesting anecdotes of his early days and delivered a speech in French.

### Epidemics of Plague and Smallpox in India.

The official returns of plague mortality for the last week in India show that the deaths reached the enormous number of 45,000, 12,000 in excess of the highest record since 1896. Of this total the united provinces of Agra and Oudh are responsible for 20,000 and the Punjab for 12,000. In Bombay, in addition to plague, a severe epidemic of smallpox is raging. The fever hospitals are crowded with cases and the number of physicians and nurses is totally inadequate to deal with the outbreaks. Every obstacle is placed in the way of disinfection of stricken areas by the natives, who bitterly oppose it both in consequence of religious and of caste prejudices. In the larger of the afflicted communities some headway is being made in the direction of inducing the people temporarily to abandon their villages when shelter can be found for them elsewhere. As before, the greatest mortality is among women. This is attributed to the fact that they spend most of their time in their houses and rarely wear shoes, thus rendering themselves specially liable to contagion from dead and dying rats. In the towns a vigorous crusade against rats is being conducted with great vigor and a reward is given for every rat slaughtered.

### Typhus Fever in London; Diagnosis Missed.

An outbreak of typhus fever has occurred in the borough of Stepney. The disease has been practically unknown in the metropolis for a considerable period, so that very few physicians have ever seen a case. The result, as in the recent epidemic of smallpox, has been that want of practical acquaintance with the disease has led to erroneous diagnoses. A family consisting of father, mother and six children lived in a house which was kept in good condition. The father, a tailor, had been working in a country town, returned home, and immediately fell ill. He was attended by a physician who thought that he detected pleurisy, but after some days the patient got better and returned to his work in the country. He found that he was too weak to work, and after a few days he returned home. Five days later his daughter, aged 12, was taken ill with headache, vomiting and fever, and attended once at the London Hospital. She was then treated by a physician at her home. After a week he diagnosed typhoid fever and she was removed to a fever hospital. There, in a few days, the superintendent diagnosed typhus fever. Some days after her removal one of her brothers fell ill and was taken to the London Hospital, where he was admitted as suffering from rheumatism, but three days later the diagnosis was changed to typhoid fever. Subsequently the suggestion of typhus fever was made, and this was confirmed on hearing of the sister's case. About a week after the removal of the boy to the hospital two other children, aged respectively 9 and 10 years, fell ill and were at once sent to the fever hospital, where typhus fever was diagnosed at once. The physician who attended the first child fell ill a few days after she was removed to the hospital. He was admitted to the London Hospital, where he was supposed to be suffering from influenza. He rapidly grew worse and had marked mental symptoms and died in a fortnight. The cause of death being obscure, a necropsy was made. The spleen was found enlarged and the lungs congested, while the blood presented the characters common in acute pyrexial diseases. The health officer believes the case to have been one of typhus, but the certificate given at the London Hospital gave as the cause of death influenza and toxemia.

### The Importance of Truthful Answers by Applicants for Life Assurance.

The following case occurred recently. A man insured his life for $5,000 on Sept. 30, 1903, and died on November 31 of the same year. The insurance company refused to pay on the grounds that his answers were untrue. As usual, he had signed a declaration that his answers were true and that they were to be the basis of the proposed contract. In answer to the question whether he had ever met with an accident he said "No," but it was proved that in the preceding month he had met with an accident by falling, for which he had been attended by a physician and for which he had made a claim on, and received payment from, an accident insurance company. Asked whether he had consulted any physician within the preceding five years, he said "No." The case was taken into court and tried before the lord chief justice, who put the question to the jury whether in their opinion the questions referred to such an accident as had befallen the insured, adding: "There are all sorts of accidents; for instance, we may spill a teacup, and that is an accident." This summing up apparently upset the minds of the jury, who brought in a verdict that the injury was not of sufficient importance to need mentioning. While the jury were out of court considering their verdict the judge caused some surprise by informing counsel for the company that if the jury found against them he would not deliver judgment on that day, but would appoint a day when he would hear counsel again and give his decision. It looked, therefore, as if he thought that the jury might be led astray by his charge. When the case came before him again he said that he had been wrong in leaving the question to the jury and that he must give a verdict for the company. The case was taken to the Court of Appeal by the widow of the insured man. Her counsel urged that the accident was so trivial as not to affect the risk the company was taking. In giving judgment, Lord Justice William pointed out that a true answer to the questions was the basis of the contract, and without calling on counsel for the company, dismissed the appeal. Commenting on the case, the *British Medical Journal* points out the absurdity of the lord chief justice's charge which asked the jury to say whether the answers given by the proposer was sufficient for the purposes of the medical examiner, who uses them as the basis of his conclusions.

### Why Sir Frederick Treves Retired from Practice: Too Much Success.

In an article contributed to a lay magazine Sir Frederick Treves has given an interesting account of his work and has explained why he relinquished practice when while still a comparatively young man and in the height of his fame. He simply found the work so great that life was not worth living. "Not that my labors were breaking me down. Nothing would, I think, do that. I have no nervous system, not having had need of one, and I have never had to keep to my bed. I was invariably downstairs at 5 a. m., I breakfasted at 7:30, and almost without exception there was an operation at 9. Then right up to 1 p. m. there were patients to see. After that I went out, and, having lunched in my carriage, devoted the afternoon to consultations. When did I get home? At all hours. I gave it up because there was too much to do. Performance of big operations every morning makes existence rather trying. I got tired of my duties; they bored me to death; so that after twenty-six years of practice I retired." Sir Frederick Treves retains, of course, his post of sergeant-surgeon to the king, which involves not only his personal services to the king, but also his being sent to consult in surgical cases when the patients are friends of the king. Recently he operated successfully for appendicitis on the Princess Victoria, the daughter of the king. Sir Frederick is also head of the medical civilian board of the army medical department.

### Sir Frederick Treves on the Use of Hospital Funds.

Sir Frederick Treves has made some valuable criticisms on the recent report of the committee of the King's Hospital Fund on the financial relations between hospitals and medical schools which has been referred to in The Journal. Though he considers the report valuable and lucid, he does not think that it considers the matter sufficiently from the patient's point of view. In a hospital with a medical school, he points out, the surgeon diagnoses a case or performs an operation, watched and criticised by students, who in the future can influence for good or ill his reputation. Under such criticism he does his best and the patient is benefited. If the surgeon goes round with only nurses and dressers, however honest he be, it is improbable that he will take the same anxious pains in the diagnosis and treatment of every case. Another important point is that in a hospital with a school, if the surgeon makes mistakes he is found out at the necropsies.

### The Registrar General's Annual Report.

The registrar general's sixty-sixth annual report, for 1903, contains considerable matter of interest. Much attention in recent years has been given to the depression of the marriage and birth rates. As a result of criticism in the general register office, a new method of presenting the ratios of marriages and births has been adopted. The basis of the total population is not regarded as satisfactory. For the marriage rate, a better standard is obtained by eliminating the already married persons from the population, and calculating the rates on the unmarried and widowed above the age of 15, thus dealing with that section of the population alone in which marriages take place. Calculated by this method, the English marriage rate has steadily declined during the last 20 years, while the rate calculated in the ordinary way shows a slight increase. For the birth rate, again, the total population is not regarded as the best basis of calculation, because it does not take into account age constitution of the female population, particularly of that portion at the child-bearing age. For example, the population of women aged from 15 to 45 years to the total population, which was 23.1 per cent. in 1871 and in 1881, rose to 25 per cent. in 1901. If, therefore, the average fecundity of the female population had remained constant, the births registered in 1903, which numbered 948,271, would have amounted to 1,250,000. Thus the better method of measuring the birth rate is to calculate the proportion of births per 1,000 women of the child-bearing ages. The result shows a decrease far greater than that indicated by rates based on the total population. The English birth rate calculated in the ordinary way appears to have decreased by 6.8 per cent. only in the last decade, but the decrease, based on the number of child-bearing women, amounts to 11.5 per cent. In mortality rates the same disturbing factor of changing age constitution of the population is operative. With regard to infant mortality, the rule is that it is high in countries with a high birth rate, but English experience shows that high infant mortality may accompany a comparative low birth rate. In the decade from 1893 to 1902 the infantile mortality averaged 152 per 1,000 births. The death rate in England has shown a steady decline since 1854, when it was 23.5. In 1903 it was 15.4. As to the causes of death, consumption still heads the list. The following are the principal causes of death per million of the population: Consumption, 1,203; pneumonia, 1,124; bronchitis, 1,112; cancer, 872; heart disease, 825; diarrhea, 542; Bright's disease, 283; measles, 274; influenza, 189; diphtheria, 182; scarlet fever, 125; typhoid fever, 100. Old age is returned as the cause of death in 902 cases per million. In the mortality from consumption there is a steady fall; it is only three-fifths of what it was 25 years ago. Cancer, on the other hand, is increasing. Some diseases are disappearing entirely. There was not a single death from rabies in 1903, which is to be attributed to the stringency with which the order for the muzzling of dogs was carried out some years ago.

# Pharmacology

## The Question of Proprietaries.

An editorial that appeared, some time ago, in the *Vermont Medical Monthly*, on the question of proprietaries, is being widely disseminated by manufacturers of secret nostrums as an argument in favor of the use of their particular product. While the editorial itself may be said to present a number of the more important phases of the question in a rather doubtful, if not altogether misleading manner, in its concluding remarks, it clearly outlines the true causes, or the underlying reasons, for what the editor is pleased to denominate hysterical opposition to the use of proprietary remedies. It will be safe to assert that no one who has given this question a reasonable amount of thought, would be willing to differ from the opinions expressed by the editor, when he says "In regard to dishonest proprietaries no argument or condemnation is necessary. They are not what they claim to be, they betray the trust, they falsely create and they are evils that should be fought. Experience is often necessary to discover them, but when discovered they should be given a wide berth."

This statement, as noted before, embodies the true cause of the present and of every previous atempt by fair minded individuals to inquire into, and if possible to regulate the use of proprietary medicines. It is the dishonest proprietaries, and the dishonest proprietaries alone, that are objectionable. The problem that confronts us, however, and it is here that many of us differ from the editor of the *Vermont Medical Monthly*, is the question of whether or not we may, individually, assume to segregate the honest and truthful from the dishonest and misleading by following the questionable and frequently uncertain procedure of subjecting our patients to the risk and to the expense of the experimentation or by allowing ourselves to be used for exploiting some proprietary article as a patent medicine to the laity. As members of a liberal profession, as unbiased searchers for the germ of truth, or as fair minded and honest medical advisors of individual patients can we, under any circumstance, countenance or continue to use substances of whose composition, uses or limitations we can have little or no assurance other than the statements of the manufacturer or his agents!

## Pharmacists' View of Physicians and Proprietary Remedies.

It is well at times to see ourselves as others see us, and in this connection it is interesting to quote from a paper by George M Beringer, Ph.M. "The Evolution of Nostrum Vending and Its Relation to the Practice of Medicine and Pharmacy," published in *The American Journal of Pharmacy*, April, 1905. After taking up the history of nostrums he says: "The blame, however, cannot be laid at the door of pharmacy alone but must be shared by both professions. We all know that in recent years a class of proprietaries have been directly offered to the physicians and prescribed by many, that have in most instances but very little to elevate them above the level of the common ordinary nostrums that are advertised direct to the public. Our prescription files show that physicians are prescribing such remedies without having but a very indefinite idea of the ingredients or actions." Mr. Beringer then quoted from a medical journal, "Boys, I'm going to give you a prescription which makes the treatment of pneumonia a cinch. Put 10 drops of tincture of ipecac and 10 drops of tincture of aconite to 4 ounces of respiton and give ½ to 1 teaspoonful every two or three hours. Is there a single pharmaceutical journal in America even among the 'house organs' that would lend its pages to such a thinly veiled advertisement and such an undignified appeal to its patrons?"

"To what, may be asked, can we attribute this tendency among physicians to depart from officially recognized preparations and methods of prescribing? Is it due to any lack of proper instruction in the medical departments of the universities and colleges? It is exceptional indeed to find among practitioners of medicine any great percentage who are proficient in chemistry, and to a still larger proportion, botany is a sealed book. Under these conditions was not the following statement, attributed to a prominent pharmaceutical manufacturer, well founded? The average physician of to-day gleans his knowledge of materia medica from the patent medicine man's circular.' It is certain that this lack of acquaintance with materia medica is appreciated by the manufacturer of such proprietaries, and his circulars and advertisings are framed accordingly. Of course, some of the remedies introduced as proprietaries have proved to be useful, and the success of such has always had an influence on the practice of medicine and likewise on the pharmacopeias. The present United States Pharmacopeia contains a number of such preparations, which are recognized under official titles and properly used. In the forthcoming edition of the pharmacopeia, probably under such titles as Liquor Sodii Phosphatis, Liquor Antisepticus and Cataplasma Kaolini, we will discern some substitutes for well-known proprietaries. It must be acknowledged that the practice of medicine is influenced to a considerable extent by the character of the surrounding community. The practice of pharmacy is still more influenced by the environment, and also by the medical practice of the neighborhood. There was no marked progress in pharmacy until the advance was inaugurated by medicine, and so in the elimination of this evil the two professions must work together, but it must be apparent that physicians must cease prescribing proprietaries before the pharmacist can cease dispensing the same. If the commercialism that has marked in many localities the practice of medicine could only be discontinued, and the physicians rise to the true dignity of their profession, how soon would the pharmacists seize the opportunity of elevating their calling and of relegating this abominable nostrum vending to ancient history. There is a great responsibility resting on pharmacy which it must bear independently of that shared by medicine. We are entirely too willing to encourage every new applicant that comes along to be advertised to the suffering public."

# Correspondence

## Cerebrospinal Meningitis in Animals and in Man.

University of Iowa, Iowa City, Iowa, April 3, 1905.

*To the Editor:*—The subject of cerebrospinal meningitis seems to have assumed considerable importance during the past few weeks because of the large number of cases which have recently occurred in New York and in other eastern places. It may not be inappropriate to mention at this time certain rather interesting results concerning this disease process, obtained recently, at the Iowa State Board of Health Bacteriological Laboratory.

On Feb. 20, 1905, Dr. H. E. Talbot, a veterinary surgeon residing in Des Moines, sent to the laboratory parts of the brains of several cattle which he reported had died with symptoms suggesting cerebrospinal meningitis. On bacteriologic examination of the specimen by Mr. Shekwana and myself, a diplococcus which from its morphologic, staining and cultural characteristics was found to be indistinguishable from the *Diplococcus intracellularis meningitidis* was found. A rabbit was inoculated beneath the dura mater with a pure culture of this micro-organism. The animal developed symptoms of cerebrospinal meningitis within fifteen hours and died in thirty hours. At autopsy a small amount of a serofibrino-purulent exudate was found in the pia-arachnoid membrane. The posterior half of the brain was found to be most extensively involved. The exudate contained quite a large number of diplococci, many of which were found to be within the cells. A careful examination of the organism was made and again it was found to be indistinguishable from the *Diplococcus intracellularis meningitidis.* We concluded therefore that it was the same organism.

On looking over the literature of the subject, I am able to find but one reference to the isolation of this organism as the causative agent of a disease process (excluding experimental studies) in a body not that of the human being. The one instance referred to is the identification of this organism as the cause of an epidemic among cattle in Minnesota—reported in the Biennial Report of the Minnesota State Board of Health for 1898, page 180 and also by Wilson and Brimhall in the January, 1904, number of the *American Veterinary Review* (Vol. XXVII, No. 10, page 944). That the specific form of cerebrospinal meningitis occurring in cattle and man and caused by the same organism is one and the same disease there seems to me to be little doubt. That the micro-organism is transferable from the one to the other appears to me most probable, and that the organism may cause meningitis in animals other than the human being is an interesting fact to note. Whether or not the passage of the organism through animals has a tendency to increase its virulence: whether or not such has anything to do with the outbreaks of the disease in epidemic form and whether or not this factor is of importance in connection with the recent epidemics in the east, would be interesting to determine. The cases among cattle in Iowa do not seem to be associated with any cases among human beings. A few days ago we were informed that the epidemic among the cattle is becoming more extensive. We shall continue our investigations and shall be pleased to report to you when further results are obtained.

Henry Albert,
Director Iowa State Board of Health
Bacteriological Laboratory.

# Association News

## An Invitation to Portland Via Los Angeles.

Los Angeles, Cal., March 27, 1905.

*To the Editor:*—In your various allusions in The Journal to the Portland session and matters pertaining thereto, I beg that you do not fail to call the attention of the profession to the desirability of procuring a ticket to Portland via Los Angeles. There is a too-widespread belief throughout the East that, as this country is so warm in winter, it must be almost unendurably hot in summer. It is not so at all. San Diego, Los Angeles, Santa Barbara, in fact the coast towns, are cool and delightful. We who live here much prefer the summers to the winters. Then, too, the remarkable sea fishing at that enchanted isle, Catalina, is at its height in summer. I admit that the towns more than thirty miles to the interior are much hotter. But any of the physicians who will stop off en route to or from Portland, taking in the above mentioned places, will enjoy one of the treats of their lives. The government thermometer readings taken in this city show the mean temperature for July to have been, in 1902, 68; 1903, 68, and 1904, 70. Please come here, as many as can.

J. H. Martindale.

## Excursion to Alaska.

It is important that those who are thinking of taking in the Alaska trip after the annual session at Portland should at once inform the chairman of the committee of arrangements, Dr. K. A. J. Mackenzie, Portland, Ore. It is necessary that he should know approximately how many will go before he can make the preliminary arrangements.

## NEW MEMBERS.

New members for the month of March:

ALABAMA.

Bowcock, R. L., Anniston.
Pitts, McLean, Selma.
Steele, A. N., Anniston.
Turner, Wm. B., Graselly.

ARKANSAS.

Biggs, E. L., Hot Springs.

CALIFORNIA.

Barber, George Holcomb, San Francisco.
Christal, J. F., Santa Cruz.
Euloe, N. T., San Francisco.
Filipello, E. A., San Jose.
Hurlbut, E. T. M., Sebastopol.
Hedgpeth, W. R., Santa Cruz.
Harris, Ross Allen, Los Angeles.
Hart, Morton E., San Francisco.
Love, J. H., Ventura.
Love, J. A., Fortuna.
McGuire, J. A., Santa Cruz.
Payton, J. E., Redlands.
Stoddard, C. S., Santa Barbara.

COLORADO.

Haviland, C. M., Ft. Collins.
Reed, D. W., Greeley.
Spencer, F. R., Boulder.

CONNECTICUT.

Blackman, Chester E., Bridgeport.
Butler, Wm. J., New Haven.
Chase, Arthur A., Plainfield.
Smith, H. F., Hartford.

DISTRICT OF COLUMBIA.

Smith, Harold W., Washington.
Strite, Clarence Edward, Washington.

FLORIDA.

Meagley, Frederick, Daytona.
Moor, F. Clifton, Tallahassee.

GEORGIA.

Cato, R. E., Americus.
Clay, T. S., Savannah.
Dorminy, E. J., Fitzgerald.
Hodgson, Fred Grady, Atlanta.
Meldrim, Chas H., St. Simon's Mills.
Murphey, Eugene E., Augusta.
Ross, J. T., Macon.
Todd, J. S., Atlanta.
Wilmerding, W. E., Atlanta.

IDAHO.

Poole, Francis H., Ross Fork.
Young, James A., Pearl.

ILLINOIS.

Bell George, Chicago.
Barker, B. L., White Heath.
Churchill, Frank S., Chicago.
Curry, A. B., Bloomington.
Drueck, C. J., Chicago.
Dwyer, Anna, Chicago.
Green, Frederick R., Chicago.
Jacobson, A., Chicago.
Korssell, C. F. P., Chicago.
Lindquist, Jno. F., Chicago.
Poynton, R. A., So. Chicago.
Soliday, Virginia R., Chicago.
Sloan, E. P., Bloomington.
Wessels, Walter Fred'k, Mendon.
Yarros, Rachelle S., Chicago.

INDIANA.

Emerick, T. C., Mt. Vernon.
Spurgeon, Orville E., Muncie.

INDIAN TERRITORY.

Wilson, W. A., Cornish.

IOWA.

Blocklinger, A. H., Dubuque.
Middleton, G. M., Davenport.
Morrison, Jno. W., Alta.
Van Epps, Clarence, Iowa City.

KANSAS.

Hearst, A. L., Benedict.
Logsdon, W. T., Wichita.
Smith, Albert Godfrey, Oskaloosa.

KENTUCKY.

Chumbly, Chas. A., McGuffy.
Nichols, C. L., Louisville.
Thomas, Robert A., Bowling Green.

LOUISIANA.

Williams, Esby M., Morgan City.

MARYLAND.

Cox, N. H. D., Arlington.
Knorr, E. A., Baltimore.

MASSACHUSETTS.

Hayward, W. F., E. Brookfield.
Robertson, W. B., Worcester.

MICHIGAN.

Cornwell, Edwin S., LaSalle.
Hoag, F. L., Ionia.
Hubbert, W. R., Detroit.
Matthews, J. D., Detroit.
Parker, W. E., Dowagiac.
Shotwell, Carlos W., Detroit.
Smith, Virginia T., Spring Lake.
Seager, Geo. B. M., Adrian.

MINNESOTA.

Gordon, Geo. J., Minneapolis.

MISSISSIPPI.

Shepherd, Banks A., Lexington.

MISSOURI.

Hoagland, W. L., Kansas City.

Homan, Geo., St. Louis.
Lewis, Jacob K., Kansas City.
McDonald, Park L., Kansas City.
Schudde, O. N., Vienna.
Vernon, Geo. W., Dexter.

### NEW HAMPSHIRE.

Buzzell, C. P., Conway.

### NEW JERSEY.

Baketel, H. S., Jersey City.
Brückner, Charles Henry, Newark.
Seeds, John B., Trenton.

### NEW MEXICO.

Strong, S. Meredith, Santa Rita.

### NEW YORK.

Beal, Frederick E., New York City.
Greeff, J. G. William, New York City.
Howell, C. H., New York City.
Nellis, Irving O., Herkimer.
Pick, Chas. J., New York City.
Reich, A., New York City.

### NORTH CAROLINA.

McCracken, J. Rufus, Crabtree.

### OHIO.

Brokaw, W. F., Cleveland.
Bevington, E. E. Sulphur Springs.
Buechner, W. H., Youngstown.
Beach, P. E., Seville.
Brady, M. B., Cincinnati.
Crooks, J. H., Youngstown.
Dalbey, R. A., Youngstown.
Powell, E. A., Cleveland.
Smith, Anna G., Toledo.

### OKLAHOMA.

Grantham, Elizabeth, Alva.

### OREGON.

Wight, Otis B., Portland.

### PENNSYLVANIA.

Baugh, A. W., Paoli.
Buchanan, S. A., Philadelphia.
Collmar, C., Easton.
Danzer, Wm. F., Hazleton.
Fell, John A., Doylestown.
Gillespie, Frank, Oxford.
Haworth, Elwood B., Pittsburg.
Hammond, Henry P., Franklin.
LeCompte, W. C., Bristol.
McCombs, W. H., Pittsburg.
Myers, Hewitt Clyde, Steelton.
Smith, Chas. B., Newtown.

### RHODE ISLAND.

Moore, Elmer E., E. Providence Centre.

### SOUTH DAKOTA.

Baker, A. R., Lead.
Judd, Herman S., Lead.
Tarbell, Hervey A., Watertown.

### TEXAS.

Davis, O., Cistern.
Keys, Thomas I., Rockwall.
Michie, Joseph D., Heath.
Quarles, J. M., Post Oak.
Wilder, H. Lawler, Granbury.

### VIRGINIA.

Brumfield, W. A., Renan.
Blankingship, O. F., Richmond.
Hobson, E. L., Jr., Richmond.

### WASHINGTON.

Cassel, Rufus J., Mt. Vernon.

### WISCONSIN.

Beck, H. M., Green Bay.
Bellin, Julius Joseph, Green Bay.
Coleman, Harry M., Barron.
Evans, N. C., Mt. Horeb.
Goggins, Robert J., Oconto Falls.
Howison, N. L., Menomonie.
Hansen, Carl A., Argyle.
Lewis, L. V., Sun Prairie.
Omsted, N. Stoughton.
Oberembt, R., Milwaukee.
McCracken, R. W., Union Grove.
Newbury, F. H., Oshkosh.
Rogers, E. H., Stevens Point.
Tomelty, Thomas, Mukwonago.
Thompson, A. S., Mt. Horeb.
Whitney, D. C., Rice Lake.

### PHILIPPINE ISLANDS.

Strong, R. P., Manila.

## *Marriages*

Charles W. Houghton, M.D., to Mrs. S. J. Whitaker, both of Philadelphia, March 18.

George L. Wilkens, M.D., Baltimore, to Miss Annie Beatin, at Philadelphia, March 28.

Carl S. Bungardt, M.D., to Miss Linnie Eugenia Bush of Kansas City, Mo., April 3.

Earl M. Sappington, M.D., Darlington, Md., to Miss Hattie C. Porter, at Baltimore, March 23.

Burton C. Hauser, M.D., Wilkesbarre, Pa., to Miss Achsah L. Mitchell, at Baltimore, March 20.

W. H. Hall, M.D., Butte, Mont., to Mrs. Purden Smith-Miller of Los Angeles, Cal., March 22.

G. Lane Taneyhill, Jr., M.D., Baltimore, to Miss Ethel Cranston, at Washington, D. C., March 25.

Archibald C. Sheppard, M.D., Glen Carbon, Ill., to Miss Wilhelmina Beyerbach of St. Louis, March 21.

August Fredric Hunte, M.D., Truman, Minn., to Miss Christine Schaleben of Madelia, Minn., March 23.

Daniel Warwick Harman, M.D., U. S. Army, to Miss Vertie M. Irvine of Charlottesville, Va., March 20.

Otto L. Ricker, M.D., Cadillac, Mich., to Miss Nellie Beatrice Shupe of Fostoria, Ohio, at Cadillac, March 21.

## *Deaths*

**William H. Warder, M.D.** University of Nashville Medical Department, 1859; Jefferson Medical College Philadelphia, 1871; a member of the American Medical Association, Medical Society of the State of Pennsylvania, Philadelphia County Medical Society, Philadelphia Obstetrical Society and Medical Club of Philadelphia; orator of the Jefferson Medical Alumni Association in 1886, and president in 1887 and 1898; a member of the obstetrical staff of the Philadelphia Hospital from 1874 to 1881, died suddenly at his home in Philadelphia, March 28, from heart disease, aged 71.

**Nathan E. Whitehead, M.D.** Tulane University of Louisiana Medical Department; New Orleans, 1867, a member of the American Medical Association; assistant surgeon of the Eighteenth Mississippi Infantry, and later major and surgeon of the Twenty-first Mississippi Infantry, C. S. A.; the dean of the medical profession of Leflore County, Miss., died at his home in Greenwood after a long and painful illness, March 25.

**Joseph B. Whiting, M.D.** Berkshire Medical College, Pittsfield, Mass., 1848, of Janesville, Wis., one of the oldest practitioners of southern Wisconsin; surgeon of the Thirty-third Wisconsin Volunteer Infantry in the Civil War; surgeon general of the Grand Army of the Republic in 1895; president of the Wisconsin State Medical Society in 1875, died at Palmer Hospital, Janesville, March 27, aged 82.

**Frank Horton Rice, M.D.** Vermont Medical College, Woodstock, 1854, for ten years city physician of Passaic, N. J., and for five years coroner of Passaic County; chief of staff of the Passaic General Hospital, of which he was one of the founders, died suddenly at his home in Passaic, from heart disease, March 27, aged 74.

**Milton Jay, M.D.** Eclectic Medical Institute, Cincinnati, 1859; Rush Medical College *ad eundem* 1895; a member of the American Medical Association; a life member of the Chicago Medical Society; for twenty years chief surgeon of the Chicago & Eastern Illinois Railroad, died at his home in Chicago, April 1, from exhaustion following influenza, after an illness of three months, aged 71.

**Philip Wesley Lewellen, M.D.** Medical College of Ohio, Cincinnati, 1865, formerly senator from Page and Fremont counties, Iowa, in 1878 and 1880; member and president of the State Board of Health; trustee and first superintendent of the Clarinda State Hospital, died at his home in Brookfield, Mo., March 19, from cerebral hemorrhage, after an illness of a year, aged 65.

**George Tremont Hunter, M.D.** New York University, New York City, 1891, of New York City, formerly of San Francisco, a member of the American Medical Association, New York State Medical Association, Medical Society of the County of New York, and the New York Academy of Medicine, died in St. Augustine, Fla., February 11.

**John W. Gamwell, M.D.** Berkshire Medical College, Pittsfield, Mass., 1852, formerly of Princeton, Ill., but for the last sixteen years a resident of Pittsfield, Mass., some-time selectman of Torrington, Conn., and in 1876 a member of the state legislature, died at Daytona, Fla., March 26, from asthma, aged 74.

**George F. Leick, M.D.** Medical Department of the Western Reserve University, Cleveland, 1885, of Cleveland, Ohio, health officer of the city for two years, demonstrator of anatomy at his alma mater, died at St. Alexis' Hospital, Cleveland, from nephritis, after a long illness, aged 48.

**Henry C. Mooney, M.D.** Chicago Medical College, 1876, a member of the American Medical Association, and one of the most prominent practitioners of Wabash County, Ind., died suddenly at his home in Laketon, March 24, from cerebral hemorrhage, aged 54.

**Jesse F. Myers, M.D.** College of Physicians and Surgeons, Keokuk, Iowa, 1884, city physician of Joplin, Mo., and formerly physician of Jasper County, Mo., died at his home in Joplin, March 22, from tuberculosis, after an illness of four months, aged 48.

**William H. Doughty, M.D.** Medical College of Georgia, Augusta, 1855, a member of the American Medical Association, and said to be the oldest practitioner in Augusta, Ga., died at his home in that city, March 28, after a protracted illness.

**John McCormick, M.D.** Western Reserve University Medical Department, Cleveland, 1882, of Greensburg, Pa., died at a sanitarium in Frankford, Philadelphia, from cerebral hemorrhage, March 25, after a long illness, aged 44.

**Joseph Deal, M.D.** University of Wooster Medical Department, Cleveland, 1849, formerly of Mount Union, Iowa, died at the home of his daughter in Southfork, near Mora, Minn., March 22, from senile debility, aged 84.

**Howard Servis, M.D.** Department of Medicine of the University of Pennsylvania, Philadelphia, 1858, of Junction, N. J., died at the home of his daughter in New York City, March 24, from cerebral hemorrhage, aged 75.

**Agideous Noel, M.D.** University of Maryland School of Medicine, 1862, surgeon of the Two Hundred and Fifth Pennsylvania Volunteer Infantry in the Civil War, died at his home in Bonneauville, Pa., March 26, aged 71.

**Lloyd W. Brown, M.D.** Baltimore Medical College, 1849, who retired from practice forty years ago, died at the home of his daughter in Decatur, Ill., March 21, from pneumonia, after an illness of three weeks, aged 81.

**Richard H. Sullivan, M.D.** New York University, New York City, 1883, member of the Kings County Medical Society, died at his home in Brooklyn, March 27, from pneumonia, after an illness of one week, aged 49.

**John Oscroft Tansley, M.D.** College of Physicians and Surgeons in the City of New York, 1877, a fellow of the New York Academy of Medicine, died at his home in New York City, March 25, aged 60.

**Theodore F. Davidson, M.D.** Cincinnati College of Medicine and Surgery, 1870, some-time city physician of Portsmouth, died at his home in Columbus, Ohio, March 22, after an illness of ten weeks, aged 59.

**Theodore Sittel, M.D.** University of Giessen, Germany, 1854, one of the founders of St. Mary's Hospital, Cincinnati, died at his home in South Norwood, Cincinnati, March 25, after a brief illness, aged 76.

**Edmund G. Pugsley, M.D.** Medical College of Ohio, Cincinnati, 1845, a surgeon in the Army during the Civil War, and later a practitioner of Walla Walla, Wash., died in Tacoma, Dec. 3, 1904, aged 83.

**Charles M. Hensel, M.D.** Starling Medical College, Columbus, Ohio, 1896, died at his home in Lithopolis, Ohio, March 20, from pneumonia. He was a member of the Fairfield County Medical Society.

**James B. Cargen, M.D.** College of Physicians and Surgeons, Keokuk, Iowa, 1879, died at his home in the town of Oakland, Wis., February 5, from cerebral hemorrhage, after an illness of two years.

**David E. Ellis, M.D.** Geneva (N. Y.) Medical College, 1843, formerly of Belvidere, Ill., died at the Illinois Northern Hospital for the Insane, Elgin, March 18, from senile gangrene, aged 85.

**Francis E. Buck, M.D.** Cleveland Medical College, 1879, health officer of South Pasadena, Cal., died at his home in that city from poisoning by carbolic acid accidentally administered, aged 49.

**Franklin Kimball Burr, M.D.** Rush Medical College, Chicago, 1895, died at his home in Englewood, Chicago, February 20, from cerebral hemorrhage, after an illness of eight days, aged 36.

**Charles A. Olcott, M.D.** Bellevue Hospital Medical College, New York City, 1876, member of Kings County Medical Society, died from pneumonia at his home in Brooklyn, March 30, aged 50.

**Frederic Danne, M.D.** New York Medical College, New York City, 1863, died at his home in New York City, March 27, from nervous prostration, after an illness of one year, aged 68.

**Charles Parker French, M.D.** Castleton (Vt.) Medical College, 1848, died at his home in Denver, February 23, from injuries sustained in a fall two days before, aged 81.

**Charles Wright Filler, M.D.** University of Maryland School of Medicine, Baltimore, 1876, died at his home in Washington, D. C., March 22, after a prolonged illness, aged 52.

**Thomas Dale Gilbert, M.D.** The University and Bellevue Hospital Medical College, New York City, 1900, of Washington, D. C., died at Liberty, N. Y., March 29, aged 30.

**Emil A. Chaffers, M.D.** Michigan College of Medicine and Surgery, Detroit, 1896, died at his home in Detroit, March 26, from pneumonia, after a short illness, aged 42.

**Charles Dearborn Wiggin, M.D.** Medical Institution of Yale College, New Haven, Conn., 1875, died at his home in Mystic, Conn., from pneumonia, May 21, 1904, aged 63.

**John A. Nelles, M.D.** McGill University Medical Department, Montreal, 1858, died suddenly at his home in London, Ont., March 25, from cerebral hemorrhage, aged 79.

**John Andrew Murray, M.D.** Department of Medicine, University of Pennsylvania, Philadelphia, 1894, died at his home in Providence, R. I., Aug. 27, 1904, aged 37.

**George W. Welborn, M.D.** Medical College of Evansville, Ind., 1877, of Stewartsville, Ind., died in St. Louis, March 23, after a surgical operation, aged 60.

**W. F. S. Murdy, M.D.** Missouri Medical College, St. Louis, 1878, died at his home at Fort Madison, Iowa, March 30, after an illness of two months, aged 50.

**George E. Bullard, M.D.** Albany (N. Y.) Medical College, 1853, died at his home in Blackstone, Mass., March 25, after an illness of nine years, aged 78.

**Rufus T. Kendrick, M.D.** Examination Georgia, of Tifton, Ga., died at the home of his son in Brunswick, Ga., March 26, after a short illness, aged 74.

**James Wiltse, M.D.** Bellevue Hospital Medical College, New York City, 1890, died at his home in Benson Mines, N. Y., from pneumonia, March 19.

**James Fielding Lewis, M.D.** University of Louisville (Ky.) Medical Department, 1857, died at his home in Hebbardsville, Ky., February 20, aged 71.

**Henry Jackson Shaw, M.D.** Department of Medicine University of Pennsylvania, Philadelphia, 1854, died in Memphis, Tenn., March 3, aged 79.

**Fabius Fox, M.D.** Baltimore University School of Medicine, 1898, died suddenly from heart disease at his home in Baltimore, March 29, aged 42.

**James R. Murphy, M.D.** University of Louisville (Ky.) Medical Department, 1882, died at his home in Dunmore, Pa., March 27, from uremia.

**Edward T. Brown, M.D.** Illinois, 1872, died at his home in Lake City, Fla., March 22, as a result of injuries received nine months before, aged 79.

**James H. Parcel, M.D.** Years of Practice, Illinois, 1878, of Westfield, Ill., died at Anna, Ill., March 16, after a long period of invalidism, aged 76.

**William G. Burriss, M.D.** Central Medical College, St. Joseph, Mo., 1898, of Ottawa, Kan., died in Kansas City, Mo., from peritonitis, March 24.

**Amasa P. Robertson, M.D.** Cincinnati 1873, died at his home in Mount Liberty, Ohio, March 25, after an illness of seven weeks, aged 62.

**William Bodenhamer, M.D.** Worthington (Ohio) Medical College, 1840, died at his home in New Rochelle, N. Y., March 31, aged 97.

**Mason J. Snowden, M.D.** Meharry Medical College, Nashville, Tenn., of Marshall, Texas, died suddenly in Paris, Texas, March 23.

**Oliver H. Irwin, M.D.** Medical College of Indiana, Indianapolis, 1870, formerly of Sheldon, Ill., died at Elk City, Okla., March 23.

**Abraham Chamberlain, M.D.** Years of Practice, Pennsylvania, died at his home in Brooklyn, Pa., March 21, from pneumonia.

**Frank D. Wortman, M.D.** Ohio Medical University, Columbus, Ohio, 1898, died at his home in Gratiot, Ohio, March 20, aged 40.

**Thomas F. Ijams, M.D.** Detroit (Mich.) Medical College, 1871, died suddenly at his home in North Grove, Ind., March 26.

**Christian J. Knaur, M.D.**, died at his home in Swissvale, near Pittsburg, Pa., March 26, after an illness of two years, aged 72.

**Fernando C. Cook, M.D.** New York City, 1874, died suddenly from heart disease at his home in San Francisco, aged 72.

**Wellington W. Payne, M.D.** Examination Ohio, died at his home in Ashtabula, Ohio, February 7, after a long illness.

**James Johnston, M.D.** Medical College of Ohio, Cincinnati, 1872, died at his home in Hudson, Ill., March 26, aged 60.

**George Clarkson, M.D.** St. Louis, 1878, of Providence, R. I., died in Pawtucket, R. I., Sept. 4, 1904, aged 61.

**Philip T. Gans, M.D.** Cincinnati, 1854, died at his home in West Florence, Ohio, March 20, aged 83.

**William Harvey Walford, M.D.** Chicago, 1885, died at his home in Chicago, March 29, aged 46.

## Book Notices

A Text-Book of the Practice of Medicine. For Students and Practitioners. By Hobart Amory Hare, M.D., B.Sc., Professor of Therapeutics and Materia Medica in the Jefferson Medical College of Philadelphia. With 129 Engravings and 10 Full-page Plates in Colors and Monchrome. Cloth. Pp. 1120. Price, $5.00 net. Philadelphia and New York: Lea Brothers & Co. 1905.

This is the third text-book that Dr. Hare has prepared for the medical profession. His first, on therapeutics, was immediately accepted as a standard, and has so remained. The second, on diagnosis, was similarly received. Both of these books became popular and have retained their popularity because the subject matter was presented in a practical manner; the author had recognized the needs of the physician in his daily work, and had supplied the needs. It was to be expected that a text-book on practice by the same author would be of the same character, and the book before us shows these expectations realized. One is not long in discovering that the author has again known what the student and the physician want and has supplied that want. Theory is made subordinate to practical information and facts, and these are presented in the clear and concise style that characterize the author's writings. The book is not a compilation, it is a reflection of the views of its author, whose twenty years' experience as a writer, as a teacher and as a practicing physician qualifies him to speak with authority. In some instances one would almost wish that the views of others might have been given more recognition, but these instances are rare; and better this than a jumbling of the views of a dozen men, leaving the reader in a maze of doubt and uncertainty, as is too often the case in some of the composite text-books. While the book is a large one, containing over 1,100 pages, there is no padding nor cumbering the pages with irrelevant matter. The importance of the subjects of diagnosis and treatment is appreciated and both are made important features. The author holds conservative views regarding the therapeutic value of drugs, and there are to be found from beginning to end repeated warnings against overdrugging. A knowledge of tropical diseases is of prime importance to American physicians since we have become possessed of tropical countries, and these diseases are given fuller consideration than has been usual in our text-books. According to the preface, the articles on these subjects have been prepared by Dr. Charles F. Kieffer, of the U. S. Army, whose experience in the Philippines well qualified him for the task. We congratulate the author on having given us a text-book that will appeal at once to the student, to the busy practitioner and to the teacher, as representing the practice of medicine of the twentieth century. The book is up-to-date and represents the latest knowledge on every subject treated.

THE AMERICAN YEAR-BOOK OF MEDICINE AND SURGERY FOR 1905. A Yearly Digest of Scientific Progress and Authoritative Opinion in All Branches of Medicine and Surgery. Drawn from Journals, Monographs and Text-Books of the Leading American and Foreign Authors and Investigators. Arranged, with Critical Editorial Comments, by Eminent American Specialists Under the Editorial Charge of George M. Gould, A.M., M.D. In Two Volumes. Volume I, Including General Medicine; Volume II, General Surgery. Fully Illustrated. Cloth. Price, $3.00 net per volume. Philadelphia and London: W. B. Saunders & Co. 1905.

Each year we have had occasion to speak in complimentary terms of this excellent year-book. The method of recording the progress that has been made during the past year, as adopted in this annual, is all that could be desired. The subdivision of the work and the placing of these subdivisions in charge of men interested in the subject covered, make the work satisfactory, especially because it is reliable. A reference to individual subjects here and there shows that nothing of value is missed in the literature that is worth recording. The plan of issuing the annual in two volumes, one devoted to medical and the other to surgical subjects, makes the book more easily handled and of more practical value. We commend this work to those who desire to keep up with the progress that is being made in the various branches of medicine or who want a ready reference to the cream of the literature of the past year.

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# Miscellany

**Aerophagia.**—Heinrich Stern states in the *New York Medical Journal* that the presence of the excess of air in the stomach may cause anxiety, dyspnea, palpitation, vertigo and headache. The trouble may arise from hysteria or from extensive work or exercise in the open air. For the acute condition the stomach tube should be utilized to let the air out. Castor oil is useful in ameliorating pronounced intestinal tympany.

**California Accepts Its First Chinese Physician.**—Dr. Chang A. Holt has recently passed the California Board of Medical Examiners, being the first Chinaman licensed to practice medicine in California. He is 26 years old, and was born in Canton. He has become a Christian. His medical education was acquired in San Francisco. It is reported that he has decided to return to his native country to pursue his profession.—*Med. Book News.*

**An Index of the Man.**—We are not preaching a sermon, but we venture the assertion that a physician who can not control his own temper nor tongue, can not direct his mental energies nor guide his hands in attempting to solve medical and surgical problems so well as the man who does not expect the powers of heaven and hell to respond to all his little troubles. Neither do we believe that one can make filthy words his bodyguard without losing the intimacy with dignity, devotion and diligence in more serious matters, which the scientific student and trusted physician ought to enjoy.—*Medical Times.*

**The Higher Preliminary Education of Medical Students.**—A casual consideration of the theory of ions in chemistry, essentially electrical in its nature, shows that that science in the future will demand on the part of the student a knowledge of the higher mathematics. The old "algebra, as far as quadratic equations," will no longer serve his needs, and he must learn the theory of infinitesimals, a genuine knowledge of which requires a rather high quality of mind. Evolution will eventually dispose of the question of the overcrowding of the medical profession.—*New York Med. Journal.*

**Dogmatism Out of Place.**—The habit of dogmatism, of unconditional assertion and positive, strict directions is an essential qualification for success in the sick room. But it becomes such a fixed habit with the active practitioner that sometimes he can not lay it aside even where it is most inappropriate. In discussing matters of legislation where many interests must be consulted, many conflicting views harmonized, and the path of least resistance followed, to attain important practical ends, dogmatism is quite out of place.—*Colo. Med.*

**Experimental Differentiation of Variola and Chicken-Pox.**—According to the *Semaine Médicale*, Feb. 22, 1905, at a recent meeting of the Paris Société de Biologie, P. Salmon pointed out that variola is inoculable in the cornea of rabbits, while varicella is not. In from twenty-four to forty-eight hours after inoculation of smallpox material, small transparent lesions develop which become transformed into vesicles and which are accompanied by conjunctivitis. This test also enabled confluent acne of the face to be differentiated from smallpox in one instance. L. Martin announced that he has found monkeys refractory to varicella. H. Vincent also mentioned that inoculation of the rabbit cornea is a convenient way to determine the activity of vaccine. He has learned by this test that the vaccinal virus is arrested by the filter.

**The Irresponsibility Farce.**—Our German exchanges relate that a certain elderly irregular of Munich has been summoned into court several times within the last few years to answer to charges of fraudulent practices and of practicing medicine without a license. Each time he has been acquitted on the ground that he is mentally irresponsible. He is therefore turned loose to continue his irregular practices without further molestation, until some particularly flagrant act brings him again to the notice of the police and the legal farce is again re-enacted. The *Münch. med. Wochenschrift* is now agitating the question whether the public should not be protected by having him placed under restraint in some asylum or sanatorium for mental affections. This legal farce is similar to that which is sometimes enacted in this country when a criminal is acquitted because of insanity and yet is not put under restraint to prevent repetition of the crime.

**Value of Echinacea.**—"In my own experience," states Dr. C. S. Chamberlin of Cincinnati, in the *Louisville Monthly Journal of Medicine and Surgery*, "the results attending the use of echinacea have convinced me that there is no remedy of so great value in the treatment of cases of septic infection, and I have repeatedly used it in the cases of septicemia following wounds of the extremities, which I am confident, by any other means of treatment, would have resulted in the loss of the limb and possibly of the life of the patient." He further recommends it to eliminate toxins and to alter conditions which favor suppuration and inflammation, as in the case of abscesses, ulcers, gangrene, bites of venomous insects and reptiles, tonsillitis, the exanthemata, eczema and psoriasis. Our observation of the medical literature indicates that echinacea is being used far more than formerly.

**A New Diagnostic Sign in Basilar Meningitis.**—The *Cronica Medica Mexicana* states that Squires reports a symptom which he has invariably found present in meningitis about the fourth or fifth day of the disease; it consists of a rhythmical dilatation and contraction of the pupils. To obtain this sign Squires advises the following procedure: Place the child on the nurse's lap, face upward, and with the head extending over the nurse's knee; the physician then places a hand on each side of the child's head and makes gradual forced extension. The pupils will be seen to dilate rapidly in proportion to the degree of extension. If the child's head be now gradually and forcibly flexed, the pupils will be seen to contract, almost completely closing as the chin touches the chest. This procedure may be repeated several times in order more fully to observe the phenomenon. Dr. Squires suggests that the extreme dilation of the pupils characteristic of the last stages of meningitis is largely mechanical and is due to pressure of the effusion on the centers at the base of the brain.

**The Temperance Question in Europe.**—The French, Russian and German nations are keenly alive to the dangers of alcoholic intemperance. The marked sensitiveness on this subject is not the result of fanaticism, but of facts brought to light by clinical investigation. These investigations have shown that national intemperance leads to national decay—directly by causing death through alcoholism, and indirectly, by causing physical mental decay of the offspring. None of the above-named nations can afford to face the numerical reduction of the respective populations, consequent on national intemperance in the use of alcohol. The political existence of all these countries is a matter of figures as applied to their respective populations. For this reason the governments of these countries have been actively concerned in the propaganda of popular temperance. Russia is trying to supplant the thirst for alcohol by opening tea-houses and soup houses for the poor; France is fighting her antialcoholic battle with lectures, both scientific and popular; Germany is intent on accomplishing the same aim by new and more drastic legal enactments.—*Journal of Mental Pathology.*

**Uric Acid Diathesis.**—Almost every layman, and a multitude of doctors continually speak of being "full of uric acid," meaning by this that they have muscular stiffness, or that the urine shows an excess of urates or even uric acid crystals. In the majority of instances this excessive deposit of urates or uric acid depends not on any abnormality in bodily metabolism, but on conditions of the urine which cause the precipitation or deposition of these solids. There is either a condition of acidity or a minimum quantity of mineral salts, and as a result precipitation takes place. For this so-called "uric acid diathesis" physicians prescribe large quantities of lithium and copious draughts of water. There can be no doubt that the water is advantageous, but the lithium only does good until a certain degree of alkalinity is reached, when it is of little value, and if the doses are large it acts as a depressant to the general system. It is quite true that persons who eat heartily, drink alcohol, and take no exercise, are not infrequently overloaded with effete materials representing imperfect metabolism, which cause disagreeable symptoms. It is also perfectly true that exercise, a proper diet, and the use of plenty of drinking water will overcome these symptoms, but this does not prove that the patient is a sufferer from "uric acid diathesis."—Hare's Text-book of the Practice of Medicine, 1905, p. 753.

**Baths for the People.**—The importance of frequent bathing to the health and comfort of the people is well recognized, and the establishment of the public baths of St. Paul a few years ago has done more to contribute to the happiness and welfare of an immense number of men, women and children than any other one thing in the history of this city. There are thousands who live in homes where there are no bathing facilities, and where water even in the small quantities necessary for washing the face and hands must be carried. It is time that public bath houses for the people should be established, which will be available every day in the year, baths whose actual bathing facilities shall be free.—*St. Paul Med. Jour.*

**A New Method for Separation of the Urine by Massage.**—Drs. Giordano and Nicolich of Triest have obtained the urine from the kidneys separately without the use of a ureteral catheter, says the *Medical Age.* (See also The Journal, XLII, page 1189.) Giordano observed during a nephrectomy that the urine in the manipulated kidney was pressed out, so that the first urine passed after the operation contained morbid products. Following this hint it occurred to him that the urine might be expressed for diagnostic purposes by massage. The bladder is first emptied, and then one of the kidneys and its ureter are massaged through the lumbar and abdominal regions. The resulting urine in the bladder is withdrawn, the bladder again carefully washed, and the same process applied to the remaining kidney. A number of diagnoses arrived at by this procedure were later confirmed by nephrectomy. The simplicity of this method will commend it to physicians owing to the fact that to catheterize a ureter, especially in the male, requires special skill, and it is a question of grave importance whether or not a catheter after passing through an infected bladder ought to be inserted into a healthy ureter.

**Banquet Emotional Strain, Apoplexy and Cardiac Paralysis.**—High cerebral vascular tension and the psychic emotional strain of the post-prandial speech have suddenly sealed the career of many meritorious and eminent men among us. The recent illness which fell on the Secretary of the Navy, Paul Morton, the stroke that ended the illustrious career of Daniel Manning of Mr. Cleveland's cabinet, are not yet forgotten illustrations of the dangers of high emotional strain after a full meal, as well as that of the historic and sudden death of the distinguished John Hunter, in the ward of his hospital while reprimanding a nurse for delinquency. The St. Louis *Star* looks on the after-dinner speech as a menace, and thinks the speaking should come first and the dinner follow. There is certainly wisdom in the suggestion. It undoubtedly would be wiser if the coffee and speaking preceded the wine, if the wine and brandy were not dispensed with altogether. A full meal after a flow of wit would direct blood from brain to stomach for digestion purposes, and help to hasten essential rest after the over-emotional excitation of those who are wont to set the table in a roar. A very light initial repast, if any, with coffee first, and later a full meal if desirable, would be more conservative of the brain of the spell binder banquet. The wise, habitual speaker would better adopt this plan of taking a light meal before "the meeting around the board" and turn down his glass till toward the close of "the feast of reason and the flow of soul," or never lift it. Medical men familiar with the phraseology and pathology of the reciprocal movement of brain and mind under psychic strain might wisely observe this as a sound physiologic rule in banquet speaking.—*Alienist and Neurologist.*

**Medical Education in Japan.**—Kakichi Mitsakuri states that the first western knowledge introduced into the Japanese empire was through a Dutch text-book of anatomy, which came into the hands of a Japanese physician about the year 1771. After years of study this physician and three of his friends published a good translation of this book. It had taught them that their former teaching had been wrong. On looking first at the illustrations in the book they dissected the body of a criminal in order to find out who was right, they or the teachings of the Dutch book. After the introduction of anatomy came chemistry, natural history, history, military tactics, etc. In 1868 the Imperial University was established. It had a four years' course, admitting 100 students to each course. In the educational system of Japan there are three grades, the university, the professional school, and all the schools below that grade. The boy begins going to school at 6 years of age. In the high school one foreign language is studied, either English, French or German being generally taken. Those who plan to become physicians also take German, for that is the medical language of Japan. All physicians in Japan speak German and many of them write it. The arrangement of the course is based on that of the German schools and at one time all of the professors were German. Now they are all Japanese, except two honorary members of the faculty. The subjects studied in the medical college are similar to those studied in American colleges. Attached to the university is a hospital having about 400 beds. After the student receives his degree at the end of four years, he is allowed to practice without any further examination. But many students spend several more years at home and abroad in preparation for their life work. A number of easier schools have been established in Japan where students are allowed to go directly from high school. The Japanese language is used in these schools, but a very good class of physicians is turned out. The graduates of these professional schools are also allowed to practice without a state examination. There is a third class of students, who go through an irregular course of training. They are allowed to obtain a license by passing a state examination. The demand for physicians in Japan is not completely supplied, especially in the country districts, but this deficiency will be overcome in a few years.—*St. Louis Medical Review.*

**Candidates for the Hall of Fame.**—We have more than once referred to the Hall of Fame established by the University of New York and the fact that no physician's name appears therein. The *Western Medical Review* has taken up the matter in a business-like way and is securing statements of physicians as to the names of those that are considered most worthy of place in this hall. The *Review* has provided ballots and proposes to send the resulting petition to the council of the university with the hope of securing recognition for some of America's illustrious physicians. The following are the names suggested by the *Review* and its brief historical summary of each:

BENJAMIN RUSH.

1745—1815, Pennsylvania. Educated Princeton and Edinburgh. Professor chemistry Med. Coll., Phila. (1769). Author of essays on "Slavery." "Temperance," etc. (1771); oration "Medicine and North American Indians" (1774); member Continental Congress and signer of Declaration of Independence (1776); physician to Port of Philadelphia (1790-1793): wrote "Medical Inquiries," 5 vols. (1789-98); Treasurer U. S. Mint (1799); wrote "Diseases of the Mind" (1812).

J. MARION SIMS.

1813—1883, Alabama. Conceived and performed the first operation (1845) for the cure of vesico-vaginal fistula. Invented the Sims speculum (1852) which is still in use. Performed his operation with the greatest eclat in all the capitals of Europe. Founder (1855) of great Woman's Hospital in New York City. Granted LL.D. (1881) by Univ. of Penna.

VALENTINE MOTT.

1785—1865. New York. In many respects the greatest surgeon this country ever produced. The first (1818) to tie the innominate artery and did more surgery on the large blood vessels than any other man who has ever lived. First to extirpate the clavicle for tumor Translated Velpeau's "Operative Surgery," a large and very valuable work.

JOHN COLLINS WARREN.

1778—1856. Massachusetts. First professor anatomy and surgery in Harvard. Patron of first administration of ether for a surgical operation. Founder of the *Boston Medical and Surgical Journal.*

DAVID RAMSAY.

1749—1815. South Carolina. Benjamin Rush said of him: "I never saw so much strength of memory and imagination united to so fine a judgment." Delegate to the Continental Congress (1776); wrote "History of the Revolution in South Carolina" (1785); "History of the American Revolution" (1789); "Life of Washington" (1807); "History of the United States" (1816-19).

WILLIAM T. G. MORTON.

1819—1868. Massachusetts. On Oct. 16, 1846, first administered ether to a surgical patient in the Massachusetts General Hospital, Boston. He devoted the remainder of his life to extending the influence of his wonderful discovery. French Academy of Sciences in 1852 investigated various claims to the discovery and awarded Dr. Morton 2,500 francs for having discovered the application of etherization to surgery.

OLIVER WENDELL HOLMES.

1809—1894. Massachusetts. Professor of anatomy, Harvard Medical School (1847-1882). First to call attention to the contagious character of puerperal fever. Coined the terms "anesthetic" and "anesthesia." Best known, however and most loved for his poems and prose writings, which are too numerous to mention here. "Medical Essays," "Currents and Counter Currents," "Autocrat of the Breakfast Table," "The Chambered Nautilus," are best known.

We congratulate the *Western Medical Review* on its enterprise and we urge each of our readers to co-operate by sending to the *Review*, at Lincoln, Neb., a postal card, indicating four names selected from the above list. It has been suggested that four names is not too large a number to ask places for, but not more than four should be mentioned.

**Opinion of Professor Lorenz on Damage Suits.**—Two years ago a damage suit was brought against Professor Adolph Lorenz of Vienna on account of the serious aggravation of the condition of a patient following an examination under an anesthetic. Prof. Lorenz told the patient and the family physician that the examination would be harmless and free from danger, and, as it was followed by general aggravation of the symptoms, a suit for damages followed, which Prof. Lorenz compromised for a considerable amount. In two other cases suits have been threatened. In one case he refused to operate because he thought that the patient was looking for an opportunity to bring a damage suit. He was held pecuniarily responsible nevertheless and had to pay for the patient's lost time and for the rent of the house he had taken when expecting to be operated on. In an article on this subject in the *Wiener klin.-therap. Wochft.* xii, Nos. 5-7, 1905, Lorenz states that whether the physician loses or wins his suit, the mere fact that he has been sued injures his professional reputation. Lorenz believes that there are persons who make a business of laying traps for the unwary surgeon and then bringing damage suits, and the whole trouble, he believes, is due to the excessive responsibility placed on the surgeon. The patient is likely to have overconfidence in the surgeon which is expressed by exaggerated praises when the operation is successful and by bitter denunciation when the results are unsatisfactory. Lorenz suggests as a remedy for this that the patient should be taught what he can demand of the surgeon, and that the surgeon should learn what he can safely promise the patient. When a patient places himself in the hands of a physician he passively assumes that he is justified in expecting a cure of his trouble, or at least an improvement, and he recognizes, as an obligation imposed on him, the necessity for obedience to the physician's directions, so long as they do not appear to be too rigorous. He may possibly have a vague consciousness that the obligation assumed by the physician requires material remuneration and that this remuneration ought to be as large as he is able to pay, but when the time for payment arrives he usually finds that the smallest possible remuneration will amply suffice to satisfy his sense of obligation. If, however, instead of the expected improvement or cure, the condition is aggravated and transient or permanent injury results, the patient generally considers that the physician is under obligation to indemnify him for the resulting injury. The physician recognizes as a matter of course that his duty is to serve the patient according to his best knowledge, and he is apt to assure the patient that any contemplated operation is free from danger, and often holds out the prospect of improvement or of cure. In order to earn an uncertain and generally very modest honorarium the physician summons all his knowledge and skill and in many cases risks his health and even life itself, besides exposing himself to the danger of financial ruin. The patient looks on his contract with the physician as a business contract; the pay depends on the amount of work done; poor work annuls the contract; no work entitles the first party to damages. The patient has all the rights and the physician all the obligations. The Austrian medical chambers are striving to introduce the regulation that the legal authorities shall submit to them applications for damage suits against physicians before they are allowed to be entered as suits. They claim that the reputation of the physician is such that the slightest breath tarnishes it and that the legal authorities should allow suits against physicians only on the basis of negligence, malicious intention or criminal error. When it is necessary to tranquillize a patient before a necessary operation by telling him that it is free from danger, some member of the family should always be informed of the true state of the case. When the indication for the operation is not vital the surgeon should bear in mind that no operation is absolutely free from danger. Patients should be taught that even the slightest surgical intervention has a certain amount of risk. Lorenz believes that it should be distinctly understood that the patient has absolutely no right to demand anything more of the physician than to be treated according to his best knowledge and conscience and that the physician has no further obligation than to do this

# Queries and Minor Notes

ANONYMOUS COMMUNICATIONS will not be noticed Queries for this column must be accompanied by the writer's name and address, but the request of the writer not to publish his name will be faithfully observed

### REGULATIONS GOVERNING PRACTICE OF MEDICINE IN AUSTRIA.

ST. LOUIS, March 29, 1905

*To the Editor:*—Can you give me any information regarding the laws governing the practice of medicine in Austria? Can a graduate of a U S medical college go there and practice or must he pass an examination? What are the educational requirements?

A TRAUBITZ

ANSWER —It is necessary to pass a state examination or to obtain a university degree in medicine, a necessary preliminary to which is naturalization as an Austrian subject Recognition of foreign diplomas may be obtained on passing certain examinations Further information may be obtained by writing to the Anglo American Medical Association, Vienna, Austria

# The Public Service

## Army Changes.

Memorandum of changes of stations and duties of medical officers U S Army, for the two weeks ending April 1, 1905

Turnbull, Wilfrid asst surgeon honorably discharged from the service of the United States, under the provisions of the act of Congress approved Oct 1, 1890, as amended by act approved July 27, 1892, to take effect March 17, 1905

McCulloch, C C, Jr, surgeon, granted thirty days' leave of absence

Mearns, E A, surgeon, granted three months' sick leave of absence

Davis Wm R, Owen, Leartus J, Zinke Stanley G, Culler, Robert M, Weed, Frank W, Wickline Wm A Brown, Henry L Baily, Howard H, Humphreys, H G, and Freeman Paul L asst surgeons, ordered on completion of course of instruction at Army Medical School, to Manila, P I, for duty in the Philippines Division

Winn Robert N, asst surgeon, granted three *months'* leave of absence about June 1

Hall John D, asst surgeon general, assigned to duty as chief surgeon, Department of California

Bartlett, C J, asst surgeon, leave of absence extended twenty days

Rafferty, Ogden, surgeon, ordered to proceed to the Artillery posts in District of the *Potomac* and Baltimore, with a view to determine the requirements of medical department at each station participating in Army and Navy exercises from June 11 to 17, 1905

Wing, Franklin F, dental surgeon, arrived at Fort Robinson Nebr, from leave of absence

Oliver, Robert T examining and supervising dental surgeon ordered from West Point, N Y, to New York City, on business connected with the purchase of dental supplies for the Army

Waddell Ralph W, dental surgeon, ordered from Fort Leavenworth Kans to Fort Crook Nebr for temporary duty

Stone Frank P dental surgeon, granted leave of absence for three months

Ware William H, dental surgeon left Fort Apache Ariz for *Whipple Barracks Ariz*

Rebert, Michael A, contract surgeon returned to Fort Totten N Y from leave of absence

Wythe Stephen, contract surgeon, arrived at Presidio of San Francisco Cal for temporary duty

Wells, George M, surgeon, ordered to proceed from San Francisco to Hot Springs, Ark and report to commanding officer, Army and Navy General Hospital for treatment therein

Munson, C L asst surgeon granted ten days' leave of absence with permission to apply for thirty days' extension

Thomason H D asst surgeon advanced to rank of captain

Bartlett, Cosam J, asst surgeon relieved from duty at Army and Navy General Hospital, Hot Springs Ark and assigned to duty at Fort Miley, Cal

Shortlidge E D, asst surgeon relieved from duty at Fort Miley Cal, and ordered to Army and Navy General Hospital Hot Springs Ark

Shellenberger, James E, contract surgeon arrived at his proper station Fort Sam Houston, Texas from temporary duty at Jackson Barracks La

Kierulff, H Newton contract surgeon relieved from duty at the Infantry Cantonment, Presidio of San Francisco, and reported for duty as transport surgeon of the *Buford*

Probert, Merton A, contract surgeon, ordered to accompany First Battalion, Thirtieth Infantry, on march from Fort Crook, Neb, to Fort Des Moines, Iowa, and then return by rail

Byars, Caspar R, contract surgeon, ordered from Bay City, Texas, to Fort Sam Houston, Texas, for duty.

Cole, R King, contract surgeon, granted leave of absence for two months.

Whinnery, Jean C., dental surgeon, left Fort Wright, Wash, for his proper station, Vancouver Barracks, Wash

## Public Health and Marine-Hospital Service.

List of the changes of stations and duties of commissioned and non commissioned officers of the Public Health and Marine Hospital Service for the seven days ending March 29, 1905.

Williams, L L, asst-surgeon general, relieved from duty in the Bureau, and directed to proceed to Baltimore, Md and assume command of the service, relieving P. A Surgeon C. W. Wille

Bailhache, Preston H, surgeon, reassigned to duty at Stapleton, N Y., effective March 8

Stoner, G. W, surgeon, reassigned to duty in the Immigration Service, Ellis Island, N. Y, effective March 8

Stoner, J. [illegible] from duty at Norfolk, Va, and directed to [illegible] Ind, and assume command of the service, [illegible] B. W. Brown.

Young, G. [illegible] being relieved by P A Surgeon B. W. Brown, to proceed to Chicago, Ill, and assume command of the service.

Brown, B W, P A surgeon, on being relieved by Surgeon J B Stoner, to proceed to Louisville, Ky, and assume command of the service, relieving P A Surgeon G B Young.

Eager, J M, P A surgeon, on being relieved by Assistant Surgeon A J McLaughlin, to proceed to Washington, D. C, and report at the Bureau for duty.

Blue, Rupert, P A. surgeon, relieved from duty at the Plague Laboratory, San Francisco, Cal, and directed to proceed to Norfolk, Va, and assume command of the service

Cofer, L E, P A surgeon, reassigned as chief quarantine officer of the Territory of Hawaii, effective Dec 1, 1904

Grubbs, S B, P A surgeon, on being relieved by P A Surgeon C W Wille, to proceed to Chicago, Ill, and report to medical officer in command for duty [illegible]

Foster, M H, P A surgeon, [illegible] iceable property at San Diego Qu[illegible]

Lumsden, L L, P A surgeon, [illegible] I, for duty during absence of P [illegible]

Corput, G N, P A surgeon, or[illegible] M K Gwyn, to proceed to New [illegible] ical officer in command for duty and assignment to quarters

King, W W, P A surgeon one day's leave of absence, March 18, 1905, under Paragraph 189 of the Regulations

Gwyn, M K, P A surgeon [illegible] leave of absence, to proceed to South Atlantic [illegible] and assume command of the service, relieving [illegible] Corput

Currie, D H, P A surgeon, directed to assume temporary charge of the Plague Laboratory, San Francisco, Cal

Korn, W A, P A surgeon, granted leave of absence for seven days from March 29

Wille, C W, P A surgeon, on being relieved by Surgeon L L Williams to proceed to Gulf [illegible] Station and assume command of the service, relievi[illegible] B Grubbs

McLaughlin, A J, asst [illegible] om duty in the Bureau, and directed to pro[illegible] for duty in the office of the American co[illegible] Surgeon J. M. Eager

McLarty, A A, acting asst surgeon, granted leave of absence for thirty days from April 1

McKay, Malcolm, pharmacist, to report April 3, 1905, to chairman of board for physical examination to determine his fitness for promotion to the grade of pharmacist of the first class

Heitz, F J pharmacist granted leave of absence for four days from March 8 1905, on account of sickness

BOARD CONVENED

Board convened to meet at Chelsea, Mass April 3, 1905 for the physical examination of Pharmacist Malcolm McKay to determine his fitness for promotion to the grade of pharmacist of the first class Detail for the board Surgeon R M Woodward, chairman Acting Assistant Surgeon F H Cleaves recorder

# Medical Organization

### SOME FACTS REGARDING ORGANIZATION.

The Medical Association of Georgia will act on the matter of reorganization at its next annual meeting, which is to be held at Atlanta, April 19 At the last meeting a committee was appointed to report at the coming meeting, and it has just issued a circular preliminary to its report bearing on the matter. From this we quote:

"Desiring to place before the members of the association as much information as possible bearing on the results of reorganization in other states, your committee wrote to the officers of a number of associations asking that they would give conditions existing in their states before and since the adoption of the constitution suggested by the American Medical Association.

"Prompt replies were received in every instance and the following facts are taken from the letters of either the secretary or the president of the associations of the states named

"In Kentucky, prior to the adoption of the new constitution, there were about 400 members in the state association, with less than 100 members usually attending an annual meeting. At the present time, two years after the adoption of the proposed constitution, there are 1,600 paid-up members, a large increase in the attendance on meetings and a general awakening of the profession at large.

"In Michigan, prior to 1902, the state membership had never exceeded 500: last year it was 1,800 paid-up members. Formerly only eleven counties in the state had any kind of medical society; now every county in the state is organized and working in harmony with the state body.

"In Tennessee, prior to the adoption of the new constitution, the membership had at no time been greater than 400; now it has passed 1,200; dues formerly collected had rarely been $700; last year it was over $2,000, while the quantity and character of scientific work done has been much improved.

"In Indiana, while the proposed plan was already virtually in existence, the state being organized on the basis of the county unit, still the membership increased 25 per cent. the first year, and a number of unorganized counties at once formed societies and sent delegates to the state association. No move in the state has ever given such promise of bringing all the medical men into societies for their scientific and social advancement.

"In Nebraska the membership increased the first year from 275 to about 800, and the sentiment is heartily in favor of the change.

"In Louisiana the new constitution was adopted in 1903, and reports a considerable increase in membership and a corresponding interest in scientific work. The president expresses satisfaction with the plan and writes that it is working well.

"Illinois reports that membership in the state association has increased fourfold, that there are now between 4,000 and 5,000 members in the association, or about 60 per cent. of the regular physicians in the state, with a live working unit in every county. Interest in medical matters has increased correspondingly and the rank and file of the profession are more than pleased with the change.

"Arkansas writes that in one year the membership of the association went from 150 to 700, and that the plan has given general satisfaction.

"Wisconsin had in 1903 in her state association 700 members, and there were ten feeble county societies in the state. The following year, after adopting the new constitution, the membership increased to 1,300, while every county in the state became organized and now have live working societies. At the meeting of 1904 there were 100 more members in attendance than at any previous meeting within the history of the association.

"In the neighboring state of Florida the president, Dr. Pierpont, writes in the most enthusiastic manner. He states that the membership has increased from 172 to 243, but it is especially in connection with the work of the county societies that he speaks most enthusiastically. Here he says the results have been most gratifying.

"Dr. Chase of Fort Worth, the secretary of the Texas State Medical Association, writes that prior to reorganization, or in April, 1903, there were 445 members, only about 10 per cent. of the regular practitioners, while the collections from all sources amounted to $1,815. In April, 1904, or one year later, the membership was 2,393, while the treasurer reported collections amounting to $5,986. Thus you see the increase was fivefold the first year, and the association now has *enrolled* on its list over half of the legalized practitioners of the state. This in a state 1,000 miles square. Dr. Chase goes on to say that there has never been any five-year period in the history of the state in which there has been so great an increase in good feeling among the profession, or in which more irregular practitioners have been forced out of practice or in which so much political influence for good has been exerted.

"From North Carolina we have letters from both the president and the secretary of the association. The president, Dr. Tayloe, says: 'Our medical society, now running under the plan suggested by the American Medical Association, has met with the universal approval of 99 per cent. of the doctors of our state. It has more than doubled the membership, put twice the money in the treasury and worked a success thus far in every particular.' The secretary, Dr. Way, of Waynesville, whom some of you may know, a fine fellow, says: 'I beg leave to say to you most emphatically, reorganize and do it now!' He then goes on to say that the membership increased in one year from 283 to 1,065 paid members, that 90 out of 97 counties have organized, and that owing to thorough organization they had no trouble whatever in killing before the state legislature, a bill designed to recognize osteopaths.

"F. W. McRae,
"Chairman Committee on New Constitution."

### A Press Committee.

One of the objects of organization is the "directing of public opinion in regard to the broad problems of hygiene." Several county societies have already recognized this as part of their functions and are acting accordingly. One of the latest to take up this work is the Washington County (Iowa) Medical Society. Recently a press committee was appointed, with instructions to represent the profession of the county to the press. It was authorized to prepare authoritative papers on public health, sanitary science and medical ethics, and in every way possible to educate the public in regard to the broad problems of hygiene and public health. We are informed that the committee has outlined subjects which will take over a year to complete. Each week the committee publishes a short article in the local papers, and judging from the reprints of two of these, the committee is judicious, not only in the choice of subjects considered, but in the manner of presenting them. The newspapers are willingly co-operating, and seem to be glad to publish the matter presented. No names are used, each article being signed by the press committee of the Washington County Medical Society. We commend the idea to other county societies.

### Kansas.

Dr. O. J. Furst, councilor of the Fourth District, organized the Sumner County Medical Society on March 29, with 24 members. The officers are: President, S. T. Shelley, Mulvane; vice president, H. A. Vincent, Corbin; secretary-treasurer, T. H. Jamieson, Wellington; delegate, J. L. Holliday, and censors, W. E. Bartlett, F. G. Emerson and S. W. Spitler.

### Missouri.

The physicians of Jefferson County met at De Soto on Saturday, April 1, 1905, and after listening to a talk from Dr. J. A. McCormack, organized a county society and adopted the standard Constitution and By-laws. The following officers were elected: President, W. H. Farrar, De Soto; vice president, J. W. Pickel, Festus; secretary and treasurer, H. W. Elders, De Soto; board of censors, C. G. Harris, W. E. Gibson and A. H. Hamel, De Soto; delegate to the state association, A. H. Hamel, De Soto. A number of physicians were present from adjacent counties and societies will be organized in some of these at an early day.

### Tennessee.

Tennessee State Medical Association.—The seventy-second annual meeting will be held in Watkins Institute building, Sixth Avenue and Church Street, Nashville, Tenn., April 11-13. The House of Delegates will be called to order at 8 a. m., Tuesday, April 11, while the general session will be opened at 10 a. m. at a meeting opened to the general public, at which appropriate addresses will be delivered. The president, Dr. Paul F. Eve, Nashville, will deliver the annual address at the evening session of the first day. A program of thirty-two papers on various topics will be given during the three days of the general session. The feature of the second evening will be a discussion on the "Prophylaxis of Tuberculosis," participated in by members of the medical, legal and clerical professions, state and municipal officials, editors and representatives of business and railroad corporations. A rate of one and one-third fare has been secured and a large attendance is expected.

## *Society Proceedings*

### COMING MEETINGS.

American Medical Association, Portland, Ore., July 11-14, 1905.
Tennessee State Medical Association, Nashville, April 11.
South Carolina Medical Association, Greenville, April 12.
Medical Assn. of State of Alabama, Montgomery, April 18.
Medical Society of the State of California, Riverside, April 18-20.
Amer. Medico-Psychological Assn., San Antonio, Tex., Apr. 18-21.
Florida Medical Association, Jacksonville, April 19.
Medical Association of Georgia, Atlanta, April 19.
Mississippi State Medical Association

Amer. Assn. Pathologists and Bacteriologists, Chicago, Apr. 21-22.
American Gastro-Enterological Assn., New York, April 24-25.
Medical and Chirurg. Faculty of Maryland, Baltimore, Apr. 25-27.
Texas State Medical Association, Houston, April 25-28.

## FIFTEENTH INTERNATIONAL MEDICAL CONGRESS.

*To be held in Lisbon, Portugal, April 19-26, 1906.*

### Announcement of American Committee.

New York City, March 30, 1905.

*To the Editor:*—The Fifteenth International Medical Congress will be held at Lisbon in April, 1906. At a meeting of the national American committee, held at St Louis last September, the following physicians were appointed to represent the congress:

John H. Musser, Chairman.
Ramon Guiteras, Secretary.
Dudley P. Allen.
C. S. Bull.
E. C. Burnett.
E. G. Brackett.
H. E. Bell.
Frank Billings.
Herman M. Biggs.
Herbert L. Borell.
T. J. W. Burgess.
Wm. T. Corlett.
William T. Councilman.
Wm. H. Carmalt.
Richard C. Cabot.
Charles H. Dana.
N. S. Davis, Jr.
E. C. Dudley.
Simon Flexner.
Chas. H. Frazier.
R. H. Fitz.
W. E. Fischel.
C. M. Green.
Chas. Lyman Greene.
H. A. Hare.
L. Hektoen.
W. H. Howell.
Edward Jackson
E. G. Janeway.
A. Jacobi.
C. G. Jennings.
George B. Johnson.
W. W. Keen.
Howard A. Kelly.
Chas. Kollock.
L. S. McMurtry.
James H. McBride.
A. T. McCormack.
K. A. McKenzie.
J. B. Murphy.
R. Matas.
Chas. S. Minot.
Robt. M. O'Reilly.
William Osler.
Chas. Powers.
W. F. R. Phillips.
B. Alexander Randall.
J. B. Roberts.
W. L. Rodman.
M. H. Richardson.
C. C. Rice.
Chas. A. L. Reed.
Presley M. Rixey.
H. M. Sherman.
Fred'k C. Shattuck.
Geo. H. Simmons.
Wm. G. Spiller.
Chas. G. Stockton.
Geo. Sternberg.
E. L. Trudeau.
Victor A. Vaughan.
John A. Witherspoon.
J. Collins Warren.
J. C. Webster.
Wm. H. Welch.
John A. Wyeth.
Horatio C. Wood.
Walter Wyman.

The executive committee appointed from this group consisted of Dr. J. H. Musser, chairman, and Drs. Frank Billings, William Osler, Frederick Shattuck and Abram Jacobi.

Any communications regarding the presentation of papers at this congress can be sent to Miguel Bombarda, secretary, at Lisbon: or to Dr. Ramon Guiteras, secretary for this country.

76 West Fifty-fifth Street. Ramon Guiteras.

## AMERICAN SOCIETY OF TROPICAL MEDICINE.

*Second Annual Meeting, held in Philadelphia, March 24, 1905.*

The President, Dr. Thomas H. Fenton, in the Chair.

This second annual meeting was held in the College of Physicians at 8 p. m. Thirty-six new members were received. The minutes of the council meetings and lists of contributions to the society's collections of literature and specimens were read by the secretaries.

### Program on Panama.

Dr. Seneca Egbert read a paper on "Panama and the Panama Canal."

Dr. Joseph McFarland gave a description of the canal zone, with lantern demonstration.

Dr. Roland G. Curtin read a paper on "Impressions of Panama and the *Pan-American Medical Congress.*"

The discussion was participated in by Drs. Stout, Thorington, Daland and others.

### Public School Instruction in Hygiene in Tropical Colonies.

Acting on the advice of Sir Patrick Manson, it was decided to send to the proper authorities a resolution recommending that the curriculum of public school instruction in the tropical Colonial possessions of the United States, be made to include the general facts pertaining to the prophylaxis of tropical diseases.

### Sanitation at Panama.

Resolutions were also adopted, calling the attention of the P[illegible] of the United States to the inadequate sanitary arrangements now existing on the Isthmus of Panama, and urging that he use his influence in order that they be improved before the engineering work on a large scale begins.

### Election of Officers.

The following officers were elected for the ensuing year: President, Dr. Roland G. Curtin; vice-presidents, Drs. Victor C. Vaughan and W. S. Thayer; treasurer, Dr. Wharton Sinkler; secretary, Dr. Joseph McFarland; assistant secretary, Dr. John M. Swan; council, Drs. Thomas H. Fenton, James M. Anders, Judson Daland, Ramon Guiteras, and B. F. Stahl.

(*To be continued.*)

## BOSTON MEDICAL LIBRARY MEETING.

*Meeting held March 8, 1905.*

Dr. George W. Gay in the Chair.

### Nine Years' Experience in the Treatment of Diphtheria with Antitoxin.

Dr. John H. McCollom said that it is important to have a bacteriologic examination of all cases of sore throat. Twice during the past year epidemics in institutions in Boston have been checked by systematic taking of cultures. Often, however, diagnosis may be made from clinical appearances. In such cases do not wait for report from culture. Thus with negative cultures patient may cough up casts. Study the dyspnea. If characterized by rigidity of the sterno-cleido-mastoid muscles, supraclavicular and substernal retraction, treat it as diphtheria. Cultures from the intubation tubes are invariably positive in such cases. In 1894 the mortality from diphtheria in Boston was 18 per 10,000 of population. In 1904, under the use of antitoxin, it fell to 3.35. In 1888 it was the cause of 0.13 per cent. of all the deaths in the city, while in 1904 it was responsible for only 0.03 per cent. On the other hand, the cases received at the South Department of the Boston City Hospital in 1888 were but 0.08 per cent. of the population, while in 1904 they were 0.18 per cent., or 56 per cent. of all the cases in the city. The mortality from diphtheria in 1888 was 45 per cent. of all persons attacked; in 1904, 9.5 per cent. Mortality from intubations in 1888 was 76 per cent.; in 1904, 30 per cent. Of the intubations under 2 years old, 64 per cent. were fatal; 2 to 2½ years, 50 per cent.; 2½ to 3½, 39 per cent.; 3½ to 4½, 37 per cent.; 4½ to 5½, 36 per cent.; over 5½, 34 per cent.

Antitoxin gives relief in laryngeal diphtheria if given early; 4,000, 6,000 or 8,000 units will often give relief within twenty-four hours. In operative cases it prevents the extension of the membrane. When there is evidence of extension to the bronchi, give 20,000, 30,000 or 40,000 units. The bronchopneumonia, so generaly fatal and nine years ago responsible for 17 per cent. of the deaths, may then be averted. Intubation is the approved operation. It is better than tracheotomy. Inhalation pneumonia is not probable. The value of antitoxin in the operative cases is shown by the fact that of 327 tracheotomies reported from 1864 to 1887, from 70 to 95 per cent. died. During the last nine years intubation has been done 1,553 times, with 44 per cent. mortality. During the past nine years there have been 180 cases among the doctors, nurses and other employes of the South Department, with no fatality.

*Give the full amount, from 4,000 to 8,000 units, every six or* eight hours. Repeat till there is decided improvement in the looks of the throat and the general symptoms. Few cases are really hopeless. Many die because not enough is given, from nerve degeneration or sepsis. No instance of injury has ever been noted at the hospital. Albuminuria is no more common. Heart complications and paralysis are less common. Urticaria and arthralgia, which may come on any time from ten minutes after the injection to five weeks, are, at the most only uncomfortable. An abscess always indicates an error in the technic of administration or in the preparation of the serum. Immunization is especially useful in case of hospitals and scarlet fever patients.

### The Present State of Opinion Concerning Sewer Gas and Its Effects.

**Prof. William T. Sedgwick** said the sewer gas theory so much favored thirty years ago is exploded. The fall of the theory came with the application of common sense. Definite disease germs were discovered. These are not common in sewers; indeed, the air there is very good, chemically and bacteriologically nearly sterile. Neither do germs thrive in sewage. So great is the change that the house trap is being called superfluous. Polluted air of any kind is deleterious to the human system. It lessens the vital resistance.

DISCUSSION.

**Dr. David Cheever** told of the changes he had noted in regard to diphtheria. Dr. John Ware, author of "Membranous Croup," was his professor. Diphtheria was in those days a horror, nearly always fatal. Remedies were harsh and unavailing. Antimony and mercury till salivation were lauded. Powerful emetics like sulphate of zinc added to the patient's distress. Tracheotomy was rarely done, and the doctor was forced to watch slow strangulation. Later inhalations of steam were thought absolutely necessary for all such operative cases. The late Dr. Gay reported a series of cases of tracheotomies of which only 66 per cent. died when no other man had saved more than 25 per cent. At first ether was used for an anesthetic, then chloroform and more recently nothing at all. Intubation has gradually supplanted tracheotomy and is best if done by experts. Yet when a case can not be constantly watched tracheotomy still fills a place. Antitoxin has changed our attitude toward diphtheria almost completely.

**Dr. Thomas M. Rotch** spoke of the value of immunizing doses in preventing the outbreaks of diphtheria in institutions. At the Boston Children's Hospital it has been done 9.696 times. There has been no harm, no nephritis and but a single case of diphtheria. This last was in a boy who failed to get his second dose of serum at the end of twenty-one days, which is the rule. Nurses do have it and are not immunized. Children do not have it. Five hundred units is the dose, repeated every twenty-one days. All kinds of eruptions have been noted, resembling measles, scarlet fever and other erythemas, but not varicella. No arthralgia, and not as much pain as from vaccination. The Infants' Hospital also formerly had epidemics of diphtheria. Since February, 1900, all babies admitted, 1,184, have received their immunizing dose of antitoxin. Most of these babies are under 1 year old. There has been one case of diphtheria in a child who only received 300 units. Since then 500 units has been the rule. As at the Children's Hospital, there have been controls in the nurses who do not have immunizing doses and who do have diphtheria occasionally. Dr. Rotch makes it a practice of thus immunizing every member of families where there is a case of diphtheria.

**Dr. F. H. Williams** has three rules: Get good antitoxin, give it early, give enough.

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## NEW YORK NEUROLOGICAL SOCIETY.

*Regular Meeting, held March 7, 1905.*

The President, Dr. Joseph Fraenkel, in the Chair.

### A Case for Diagnosis.

**Dr. Smith Ely Jelliffe** presented this patient, a woman, 33 years old, and a dressmaker by occupation. She had seven sisters and one brother alive and in good health. One sister had died of consumption. Her father, aged 65, is a hemiplegic. Her mother, aged 70, is in good health. The patient had had scarlet fever at 7 years of age. Following this attack she was weak for a long time and would fall easily. There was no history of hemiplegia at this time. Later she had diseases of childhood and diphtheria. She had an attack of jaundice when she was 22 years old and malaria six years ago. Menstruation began when she was about 14, and was regular, lasting two days. Some years ago she had an attack of sciatica, and gave a history of painful swellings in the axillæ, elbows and knees, probably due to some lymphatic infection. When she was 18 she fell, striking the back of her head, resulting for a time in severe headaches. Her present illness began two years ago, and its onset was gradual. She first felt pain in the little finger of the left hand, was burning in character, and running up and into the shoulder along the course of the sterno-cleido-mastoid to behind the ear. The hand began to shake and to grow weaker. The pain had lasted two weeks before the tremor and weakness became apparent. The tremor at first was very pronounced. About a year later she noticed a loss of power in the left leg, with stiffness and drawing up of the muscles and with some pain in the knee. During the past summer the pain was referred to the ankle. She compained of frequent attacks of diarrhea, with colic. There were no bladder symptoms. Examination of the eyes showed slight diplopia and nystagmus, but no impairment of sight. There was slight inequality of the pupils, but no Argyll-Robertson pupil. Consensual light reflex was normal, and the skin reflexes were normal. There were no pains, no anesthesia, no disturbance of heat and cold sensation, no Romberg sign. There was slight tremor of the head at times. Musculature good. There was weakness and stiffness of the entire left side, more marked in the upper than in the lower extremity. The reflexes were increased on the left side. There was no Babinski sign, no clonus, no tremor of leg. The tremor of the arm was coarse, of the semi-intentional type, but not typical. The heart sounds were exaggerated, but there was no murmur. The legs dragged and there was marked stiffness and rigidity. There were no electrical changes and no atrophy. The patient claimed that her memory was not so good as formerly, especially for recent events; otherwise no change was noted. Her friends state that she is more irritable than formerly, but this is, perhaps, natural, as the tremor of the hand prevented her from carrying on her business as a dressmaker. Dr. Jelliffe said that the symptoms were suggestive of a multiple sclerosis.

DISCUSSION.

**Dr. L. Pierce Clark**, who had had the patient under observation for several months at the Vanderbilt Clinic, agreed with Dr. Jelliffe that the case was one of multiple sclerosis, slowly progressive, and probably of the cerebral type, and that there were some of the evidences of involvement of the spinal cord.

### A Case of Myotonia Congenita.

**Dr. Graeme M. Hammond** presented this patient, a girl of 16, the youngest of three children. The other children were boys. One of them, aged 18, died suddenly of heart disease. The child's parents were cousins. There was no other case of myotonia on either side of the family for three generations; beyond that nothing was known of the ancestors. The patient began to walk when she was 10 months old. With the exception of measles in childhood, she had always been well and healthy. When she was about 2 years old her mother noticed that after sitting a while, the child had great difficulty in getting up and walking. She arose slowly, on account of great stiffness in the muscles, and often fell. On attempting to walk she at first found it impossible to move, so rigid were her legs. Finally she would move one leg stiffly, then the other, and began to walk with stiff, mechanical movements like "a nursery doll." The more she walked, the more limber she became, and in a few minutes walking became easy and natural, and she could even run and dance. This condition had persisted all her life. The patient menstruated for the first time in March, 1904; then not again until September, 1904, and since that time not at all. Her body and arms were rather small, but the legs and thighs were very large. The knee-jerks, after sitting a while, were present and responded quickly, but the movement was short. After walking, when the legs were quite limber, the knee-jerks were normal. Both calves measured 14¼ inches; the thighs (seven inches above the patella), 20¼ inches. The legs were 33 inches long. The muscles of the arms reacted normally to both forms of the electrical current. The legs seemed to respond normally to faradism. When galvanism was used the muscles responded sharply and deeply, then immediately relaxed; then a second contraction ensued which was not so well marked as the first. The muscle, when it contracted, did so with a wavelike or vermicular movement. The same muscular tone was observed after standing or lying down. The most difficult time the patient had was on attempting to rise in the morning.

### DISCUSSION.

**Dr. G. L. Walton**, Boston, spoke of the liability of these cases to be mistaken for hysteria, on account of the apparently meaningless transition from clumsiness to agility. Continuous observation of these patients showed an unvarying adherence to fixed rules referable to disturbance of the neuro-muscular mechanism and independently of the mind. Dr. Walton also referred to a symptom that was present in two typical cases of myotonia congenita that had been under his observation, namely, the slow and clumsy ascent of stairs, followed y an active and nimble descent. This trial was then made on Dr. Hammond's patient, with the same result.

### A Case of Progressive Muscular Atrophy of the Left Hand.

**Dr. Edward D. Fisher** presented this patient, a young woman whose occupation was that of a machine worker. Her work was passing articles along under a machine, the left hand being engaged more than the right. Her family history and past history were negative, with the exception of the fact that when she was about 10 years old she complained of pain in the upper arms, between the shoulder and elbow, when carrying her school-books. About two years ago she began to notice some weakness in the left hand and a tendency to stiffness, especially when playing the piano. This was followed by wasting of the muscles, which appeared to be typical of progressive muscular atrophy. One peculiarity of the case was the extreme icy coldness of the hands in spite of efforts to keep them warm. The electrical reactions were impaired. There were no sensory disturbances, no symptoms pointing to syringomyelia and no scoliosis. The atrophy was gradually extending up the forearm.

### Two Cases of Nerve Anastomosis.

**Dr. Alfred S. Taylor** presented two cases. The first patient, a boy, 8 years old, three years ago had an attack of anterior poliomyelitis which involved the right hand and forearm. The hand was entirely useless, but as the muscles of the shoulder and upper arm were in fairly good condition, the case was regarded as a suitable one for nerve anastomosis. A few days ago the brachial plexus was exposed and the seventh and eighth cervical and first dorsal roots were divided, turned up and inserted by lateral anastomosis into the junction of the fifth and sixth nerves. The anastomosis was effected without any tension on the nerves. The wound was then closed and the parts immobilized. The dressings were still in place and the ultimate outcome of the operation, so far as improvement of function was concerned, was doubtful.

The second patient was a boy, about 8 years old, who in the early summer of 1903 had scarlet fever, followed by otitis media and mastoiditis, for which he was operated on at the Randall's Island Hospital. Three days after the operation a facial palsy appeared, and rapidly progressed to complete paralysis. Three and one-half months later complete reaction of degeneration was found. A facio-hypoglossal anastomosis was done under chloroform anesthesia; the facial nerve was found to be soft and friable and gray in appearance. Only one suture could be made to hold to the hypoglossal, which was under such tension that a fine suture was passed through the hypoglossal sheath to anchor the nerve to the neighboring fascia, and to prevent tension on the anastomosis. Primary union was obtained. There was almost complete palsy of the muscles supplied by the hypoglossal immediately after the operation. Ten weeks after the operation some difficulty of speech remained, owing to imperfect use of the tongue. Difficulty in swallowing and mastication, and unilateral furring of the tongue, all of which were present for some weeks after the operation, and which were due to operative injury of the twelfth nerve, disappeared. Three months after the operation the face was far less asymmetrical than before and the eye could be partly closed. Reaction of degeneration was unchanged. At the end of eight months there was slight motion about the right side of the mouth; this improvement slowly continued, and fourteen months after the operation the patient had a fair amount of control over the formerly paralyzed side of the face.

### DISCUSSION.

**Dr. B. Sachs** stated that three and one-half months was rather too soon to consider an operation in a case of facial palsy, as in many of these patients improvement began after a much longer period.

**Dr. Hammond** said that he did not think the return of power in the paralyzed muscles proved that the anastomosis had been successful. He mentioned the case of a boy who developed a facial palsy after a mastoid operation, and without any attempt at anastomosis motion in the affected muscles was first noticed at the end of fifteen months, and eventually was absolutely restored.

**Dr. Leszynsky** said that he had seen a great many cases of Bell's palsy following mastoid operations, and in his experience a favorable outcome, like that reported by Dr. Hammond, was rather unusual.

### Further Report of a Case of Hypoglossal-Facial Anastomosis.

**Dr. Charles H. Frazier**, Philadelphia, said that his first opportunity to operate on a case of facial palsy was in August, 1903, when he was called in consultation with Dr. William G. Spiller to a see a patient who, five months previously, had shot himself, the ball entering the external auditory meatus. This resulted in a complete facial palsy. The case was one eminently suitable for operative intervention, as the nerve was irreparably damaged, and the muscles hopelessly paralyzed. The operation consisted in a hypoglossal-facial anastomosis. During the eighteen months that had elapsed since the operation the patient had been examined from time to time, and there had been a slow but progressive improvement. One month after the operation there was no response to the faradic current in any of the muscles. Reaction of degeneration and polar changes were marked. Six months after the operation there was no change in the condition. Nine months after the operation there was still no response to the faradic current, while with the galvanic current there was lessened irritability. At this date there appeared for the first time a peculiar involuntary movement of the angle of the mouth. Fourteen months after the operation there was still no response to the faradic current, but a slight increase of irritability under the galvanic current. Polar change was still distinct. Seventeen months after the operation voluntary movements at the angle of the mouth were observed for the first time. In addition to this, the patient was able to almost completely close the eye, and all the muscles responded to the faradic current.

Dr. Frazier called attention to the fact that it was not until after the fourteenth month had passed that a positive reaction to faradic stimulation was observed, with one exception, namely, the orbicularis palpebrarum, which responded slightly in the ninth month. Dr. Frazier said he thought no one would question the propriety of the operative treatment of facial palsy. The operation was founded on a physiologic law, and the only feature in the technic of the operation worthy of discussion is the choice between the eleventh and twelfth nerves. Dr. Frazier prefers the twelfth. So far as he has been able to learn, there had not been a single instance in which a voluntary effort to raise the shoulder has not been attended with contraction of the facial muscles, and these so-called associated movements constituted a very serious objection to the selection of the eleventh nerve. Theoretically an end-to-end anastomosis should secure the best results.

### Some Newer Ideas on Nerve Anastomosis.

This paper, by **Drs. William G. Spiller** and **Charles H. Frazier**, was read by Dr. Spiller. He considered first the possibility of benefiting by surgical means patients afflicted with an incomplete hemiplegia. When the hemiplegia is complete, or nearly so, one can not hope to accomplish anything by surgical procedures. There are many cases, however, in which there is a partial return of power in the paralyzed limbs, and experience shows that usually the restoration of motion is greater in the flexors in the upper limb and greater in the extensors in the lower limb, except those of the toes.

In order to study the conditions of paralysis existing in hemiplegia, Dr. Spiller examined 26 cases in which the paralysis dated from early childhood. The cases in which the hand had regained partial power were more numerous than those in which the foot had regained partial power. In 11 cases out of the 26 the flexors of the hand were so much stronger than the extensors that a nerve anastomosis might have been attempted, but only 4 cases offered much hope for improvement from an operation on the foot. From his investigations he concluded that there was probably a field for surgical intervention in certain cases of cerebral hemiplegia, but the cases must be carefully selected and thoroughly studied. Whether any benefit by nerve anastomosis would result to the hemiplegic individual or not, experience alone must decide. The subject, however, is one deserving attention. Dr. Spiller said that for several years he had been trying to devise some method for the treatment of athetosis, and the failure to control it in any degree is a reproach to medicine. In cases in which athetosis exists there must be irritation of the motor system somewhere. Theoretically, the proper procedure would be to cut the posterior roots of the affected limbs, the number to be cut depending on the condition in each case. This is always a serious operation, and the results at times have been unexpectedly grave. Division of one or more of the motor nerves of the affected limb, with immediate suture of the divided ends, might lessen the involuntary activity and might weaken the muscles slightly.

### DISCUSSION.

DR. CHARLES H. FRAZIER said that the adaptation of operations known as nerve anastomoses or implantations to the treatment of cerebral palsies, as proposed by Dr. Spiller, opened up a field in neurological surgery which seemed full of promise. His first clinical experience in this line dealt with a woman 65 years of age who had an apoplectic attack five years previously. When the operation was performed she was hemiplegic; there was marked atrophy of the muscles of the hand, arm and forearm, but the paralysis was so much more marked in the extensor than in the flexor group of muscles that she could only partially, and with great difficulty, extend the proximal phalanges. An incision was made along the inner border of the coracobrachialis, exposing the brachial vessels and the main nerve trunks. The median and musculospiral nerves were partially isolated, and a flap composed of one-half the median nerve was implanted into the musculospiral, and sutured in such a way that the nerve fibers of the median were imbedded in those of the musculospiral. The results of the operation up to the present time had not been very positive, although it is still possible that greater improvement may take place in time.

### The Pathology and Surgical Treatment of Chronic Facial Palsy.

DRS. L. PIERCE CLARK, ALFRED S. TAYLOR and THOMAS P. PROUT were the authors of this paper, which was read by Dr. Clark. He said it is not known why the facial nerve suffers from palsy with such frequency, nor is there adequate information regarding the nerve elements or the part of the nerve primarily involved. The extension of inflammation from the middle ear, or the effect of cold acting through this channel on the facial nerve, is easily understood. Facial palsy, both in men and animals, is relatively infrequent when the face and head are properly protected. A certain number of individuals suffer from a congenital narrowing of the foraminal exit of the nerve.

There are good reasons to believe that the initial changes of this condition take place in the perineural sheath, although the exact pathogenesis of Bell's palsy is still uncertain, because of the meagerness of the material at hand for study.

Dr. Clark said that the painlessness of Bell's palsy even to external pressure on the nerve trunk and the paralyzed muscles argued for a simple degenerative neuritis in the peripheral portion, and not a parenchymatous affection. There is good reason to believe that Bell's palsy is primarily a neuritis, which through strangulation of the nerve strands induces a low grade of secondary degenerative neuritis in the periphery. He briefly reported two cases.

### DISCUSSION.

DR. ALFRED S. TAYLOR said that his technic of facio-hypoglossal nerve anastomosis involves the following steps: 1, The incision; 2, isolation and section of the facial nerve; 3, exposure of the hypoglossal nerve; 4, the implantation; 5, the closure of the wound; 6, the after-treatment. The isolation of the hypoglossal nerve is the most difficult and tedious step and involves whatever danger there is in the operation. Once identified, it is dissected upward until the stump of the facial nerve can be approximated to it without tension. This has to be done with care, so as not to divide the minute branches from the pneumogastric, the upper ganglion of the sympathetic and the two upper cervical branches, all of which were in the immediate neighborhood. The after-treatment is a most important feature in obtaining the desired result. Massage, electricity, and later, co-ordinate muscular movements, should be persistently and systematically resorted to for months. Dr. Taylor reported six cases of facio-hypo-glossal nerve anastomosis, and showed a number of new instruments that he had designed for the purpose of rendering the operation easier technically, and of avoiding distressing sequelæ.

DR. CHARLES A. ELSBERG reported a case of facial-spinal-accessory anastomosis which was of unusual interest on account of the duration of the paralysis at the time of operation (twenty-nine and a half years), and because of the absence of associated shoulder movements.

DR. B. SACHS said that in deciding the question whether or not to anastomose the facial nerve with the hypoglossal or the spinal accessory, his preference would be in favor of the latter procedure, as it involves a nerve of lesser dignity than the former. The entire question of nerve transplantation is an extremely important one, and the physiologic aspects of the problem are still unsolved. In facial palsy several cases have been reported in which the nerve anastomosis was done three and a half or four months after the onset of the disability. This, he thought, is too early, as many cases are on record in which improvement began much later without treatment or in spite of treatment. A year at least should be allowed to elapse before operation.

DR. LESZYNSKY said that he had seen patients with facial paralysis of long standing in whom the faradic irritability had returned, although there was no return of motility.

DR. WALTON said that Dr. Spiller's proposition should have the benefit of trial. In disease or injury of the lower neurons, every gain in motion, however slight, is gladly welcomed, and if hemiplegics can be helped by nerve transplantation, there is the added hope of lessening the cerebral spasm to which Dr. Spiller referred.

DR. SPILLER said that the statement made by Dr. Taylor that in late cases, in which the paralysis had existed for a long time, the nerve may have disappeared, is correct. He mentioned such a case in which the facial nerve could not be found at all. In facial palsy one of the earliest evidences of a return of power is a slight deepening of the naso-labial fold when the eyes were closed tightly.

DR. FRAZIER said that in his cases of nerve anastomosis the hypoglossal was selected in preference to the spinal accessory purely on theoretical grounds and a study of former operations, and because associated movements followed the selection of the spinal accessory.

DR. CLARK said he thought that the proper time to operate could be fairly accurately decided on by the results of the electrical tests, and he did not think it wise to fix an arbitrary period of time. In most forms of peripheral neuritis the electrical tests formed a basis of prognosis that is almost absolute.

DR. TAYLOR said that the operative damage to the hypoglossal and the tongue-symptoms resulting therefrom were only temporary, and he did not think they should be looked on as a serious objection to the selection of that nerve for the anastomosis.

## *Therapeutics*

[It is the aim of this department to aid the general practitioner by giving practical prescriptions and, in brief, methods of treatment for the diseases seen especially in every-day practice. Proper inquiries concerning general formulae and outlines of treatment are answered in these columns.]

### Diphtheria.

In the employment of antitoxin in the treatment of diphtheria Voelcker, in *London Clin. Jour.*, recommends its use:

1. In every case of diphtheria, whether mild or severe.
2. In cases of faucial diphtheria use 3,000 units.
3. In cases of nasal diphtheria use from 6,000 to 9,000 units at once. In laryngeal diphtheria use 6,000 units and repeat the dose in twenty-four hours if the symptoms of obstruction are not diminishing.
4. When the symptoms call for intubation or tracheotomy it is better to employ the larger doses of antitoxin (doses of 6,000 units), and to repeat the dose in twenty-four hours if no improvement has taken place.
5. In cases of faucial diphtheria, if the membrane does not show signs of improvement and of separation the injection should be repeated after twenty-four hours.
6. The injection should be made into the subcutaneous tissues of the abdominal wall under antiseptic precautions by carefully washing the site of injection with an ethereal solution of soap, after which a compress of 1 to 1,000 solution of mercuric chlorid should be applied. The needle must be sterilized by boiling, fixed to the syringe, which is then filled with the antitoxin and the needle introduced obliquely through the pinched-up skin into the connective tissue and the solution injected slowly. The seat of puncture should then be sealed with a collodion dressing. In 307 cases the author reports only 2 cases of localized abscess formation.

In children the use of any local anesthetic is not advised, as cocain depresses the heart, which is dangerous in diphtheria, and freezing the skin makes the introduction of the needle and antitoxin more difficult, and when thawing takes place the presence of the pain proves that it was only postponed and not prevented. The site in the abdominal tissues has been recommended in preference to the back, in order that the patient may rest well on the back.

The author did not try the rectal injection of the antitoxin, as is recommended by Solteau Fenwick.

The general treatment should consist in keeping the patient in the horizontal position for three weeks, after which time the child may be allowed an extra pillow, then two, then a bed rest, followed by sitting up on the sofa, a walk in the ward, etc. The average stay of the patient in the hospital is forty days. During convalescence a careful watch must be kept on the pulse, and if it becomes rapid or irregular, the horizontal position must be assumed and cardiac stimulants such as strychnia should be given hypodermically, or atropin, or, better, port wine.

Regular feeding must be observed, avoiding overloading the stomach by giving small amounts at frequent intervals. In older children the period of recumbency may be shortened one week if no heart complications arise. Iron and nux vomica or cod-liver oil are of value during convalescence.

#### LOCAL TREATMENT.

The author does not advocate forcible removal of the membrane unless it be very loose and on the point of separation. He does not advise the use of caustics nor of 1 to 1,000 bichlorid solutions. In some cases a local application of a solution containing salol, glycerin and alcohol has been of service. A local washing with a boric acid solution every three or four hours for the first three days, and less often later, is recommended.

### Chronic Dyspnea.

In the treatment of chronic dyspnea due to vascular changes, Foxwell, in *Ther. Gazette*, recommends the following combinations:

| | | | | |
|---|---|---|---|---|
| ℞. | Liq. strych. (1 per cent.) | m. v | | 30 |
| | Tinct. strophanthi | m. x | | 65 |
| | *Liq. trinitrini* (1 per cent.) | m. ii | | 12 |
| | Sodii bromidi | gr. xv | 1 | |
| | Tinct. card. co. | ʒss | 2 | |
| | Aquæ q. s. ad | ℥i | 30 | |

M. Sig.: To be taken in two or three divided doses, alternating with the following:

| | | | |
|---|---|---|---|
| ℞. | Pulv. rhei | gr. i-ii | 06-.12 |
| | Hydrarg. chloridi mitis | gr. 1/20-1/10 | 003-.006 |
| | Ext. hyoscyami | gr. i-ii | 06-.12 |

M. Ft. cap. No. i. Sig.: One such capsule once or twice daily.

### Psoriasis.

Shoemaker, in *Med. Bull.*, advocates the following treatment of psoriasis:

| | | | | |
|---|---|---|---|---|
| ℞. | Acidi hydrochlor. dil. | gtt. ii | | 12 |
| | Essentiæ pepsini | ʒi | 4 | |

M. Sig.: To be taken at one dose and repeated after each meal. Also:

| | | | | |
|---|---|---|---|---|
| ℞. | Podophyllotoxinii<br>Aloini, āā | gr. x | | 65 |
| | Pulv. jalapæ<br>Massæ hydrarg., āā | gr. xxx | 2 | |
| | Ol. menth. pip. | m. iii | | 20 |

M. Ft. pil. No. xxx. Sig.: One pill at bedtime.

*When itching is present, as is rarely the case, the following* combination is recommended to give the patient relief:

| | | | | |
|---|---|---|---|---|
| ℞. | Chloralis hydratis | ʒss | 2 | |
| | Pulv. camphoræ | gr. xx | 1 | 30 |
| | Acidi carbolici | m. 1 | 2 | 30 |
| | Sulphuris sublim. | ʒi | 4 | |
| | Ung. aquæ rosæ | ℥i | 30 | |

M. Ft. unguentum. Sig.: *To be applied locally.*

In any cases of psoriasis the cause should be ascertained and treated; chronic indigestion and a rheumatic diathesis are frequent causes of this trouble. The foregoing outline of treatment is applicable when a history of digestive disturbances is obtained.

### Convulsions in Childhood.

Ashby, in *London Lancet*, states that convulsions are most common in infants who have been artificially fed first on diluted cow's milk which causes flatulence and curdy stools. The fact that convulsions are unilateral does not always prove that they are not reflex.

Laryngismus stridulus is a form of reflex convulsions and is always associated with rickets. Adduction of the cords is easily produced during childhood and frequently results from such slight causes as anger, irritation of the fauces as in catarrh, or discomfort in the gastrointestinal tract. In some cases there is tetany. Convulsions may also be due to brain irritation, as in meningitis, encephalitis, thrombosis, hemorrhage, tumors and syphilis. Whooping cough may be the cause of convulsions in childhood. In the treatment of convulsions during the convulsive stage a subcutaneous injection of morphin is recommended by the author for allaying the irritability of the nerve centers and checking the spasms, whether due to colic, meningitis or laryngismus stridulus. A strong infant six months old may be given grain 1/40 (.0015) and one a year old double that amount. Morphin should not be given to wasted and feeble infants. Inhalations of chloroform also act quickly, but the action soon ceases. Chloral by rectum is slower in action, but more permanent. Four or five grains (.25-.30) dissolved in water, or in egg and milk, may be given to an infant aged from six months to a year. The bromids act too slowly to be of use during the fits, but may be of service later to prevent a recurrence. In all cases calomel should be given, if the patient can swallow, to clear out the intestinal tract.

Nervous irritability may be prevented by sea breezes rather than by steam tents, avoiding too great changes in temperature, especially when laryngeal or bronchial catarrh is present. The child should receive a warm bath every morning, followed by a cold salt water sponge, being careful to rub the skin dry to get a reaction, and to increase the time in the fresh air from day to day. The diet must be regulated. Infants suffering from convulsions are often given too much milk and there is resulting intestinal intoxication. In convulsions of older children, whether epileptic or reflex, a modification in the diet is necessary, giving a mixed diet, moderate in amount, avoiding overfilling the stomach. Cut down the starches. Give cocoa with egg and toast for breakfast; a moderate amount of beef or mutton, with cooked vegetables and stewed fruit, cocoa, toast and honey, for dinner. Cascara may be necessary to promote sufficient elimination by the bowels. The child may be withdrawn from school, but should be given interesting employment for a few hours daily.

### Grippal Tonsillitis.

The following résumé of the treatment of tonsillitis associated with organisms of la grippe as causative factors is recommended by E. D. Lederman of New York: The treatment may be divided into constitutional and local. The former should consist of thorough catharsis, preferably with calomel in one-tenth grain (.006) doses, taken every ten minutes for ten doses, followed five hours later by eight ounces of magnesium citrate. For the high temperature which is usually present, sponge baths should be employed at a temperature of 70 F., followed by alcohol rubbing and massage.

The diet should be confined to liquids such as beef juice, matzoon, Vichy and milk.

#### THE LOCAL TREATMENT.

Cold compresses or icebags to the throat, with the sucking of small pieces of ice, alleviate to a considerable degree the pain and soreness in the throat. During the time the follicles of the tonsils are involved excellent results are obtained by applying to the inflamed area every two hours a solution of adrenalin, either by spray of by local application. This solution has a twofold effect: 1, A reduction of local inflammation; 2, a stimulating effect on the heart and circulation.

Alternating with local application of adrenalin the tonsils should be swabbed with tinctura ferri chloridi or sprayed with a solution containing equal parts of hydrogen peroxid and water.

Cultures, of course, should be made from the tonsillar exudate to ascertain the presence or absence of the Klebs-Loeffler bacillus, and, if present, the regulation treatment for diphtheria should be instituted.

#### CONVALESCENCE.

The period of convalescence is very important and should not be overlooked, as the patient is invariably weakened by this infection. The following is of service in this stage of the disease:

℞. Strych. sulph.. ........ .......gr. 1/40 |0015
Spts. frumenti....... ..................℥i 30|

M. Sig.: To be taken at one dose and repeat three times daily. [In regard to Dr. Lederman's prescription containing alcohol and strychnin, we wish—without discussing the subject—to direct our readers' attention to an abstract in THE JOURNAL, Dec. 17, 1904, page 1846, in which mention is made of the therapeutic antagonism of these two preparations.—ED.] Whisky may be administered in the form of an eggnog. The benefit derived from a change to a milder climate can not be overestimated.

## *Medicolegal*

**Province of Expert Witnesses.**—The Supreme Court of Missouri, Division No. 1, says, in the personal injury case of Taylor vs. Grand Avenue Railway Co., that it would have been proper to state to the plaintiff's experts the nature and extent of the injuries received by the plaintiff as they appeared at the time of the accident, and then to ask them whether or not in their opinion such injuries might, could or would result in paralysis. The experts having thus given an opinion, it would have been for the jury to find the fact as to whether in this particular case the paralysis was caused as the plaintiff's experts said it might have been caused, or whether it was the result of other causes, as the defendant's experts testified might be the case. To the trained legal mind there is a very essential difference between permitting an expert to give an opinion and permitting him to draw a conclusion. The one is a province of a witness; the other is, in the first instance, the special prerogative of the jury. When a witness is thus permitted by the court to invade the province of the jury, it goes to the jury with the indorsement of the court, and is calculated to make the jury believe that it was proper for the witness to find the fact, instead of the jury doing so.

**Administering Abortifacient Can Not Be Made Manslaughter.**—Section 1825 of the Revised Statutes of Missouri of 1899 provides that "every person who shall administer to any pregnant woman any medicine, drug or substance whatsoever or shall use or employ any instrument or other means with intent thereby to destroy the fetus or child of said pregnant woman, unless the same shall be necessary to preserve the life of such woman, shall be guilty of manslaughter in the second degree." The Supreme Court of Missouri, Division No. 2, says, in the case of State vs. Hartley, that it was contended that this law, under which the indictment in this case was drawn and the defendant charged with manslaughter, was inoperative and invalid, in that it undertook to establish a degree of felonious homicide, where neither the death of the child nor of the mother resulted from the acts committed, and where there was no killing or homicide, and the court holds that the legislature could not make that manslaughter when the basis of its legislation did not in fact exist. In other words, there can be no manslaughter when there is no homicide; no more than there can be murder when there is no homicide.

**Determination of Mental Capacity.**—The Supreme Court of Tennessee says, in Nashville, Chattanooga & St. Louis Railroad Co. vs. Brundige, that the contest in this case was narrowed down to the question of whether the latter party had sufficient mental capacity at the time of a compromise for personal injuries to make a valid contract. Two physicians were permitted to testify, over objection, to the effect that she did not have sufficient mental capacity to transact business and to make a contract. The court holds that this was error; that the testimony was clearly incompetent, and should have been excluded. It says that the degree or quantum of mental capacity which the party whose act is called in question must have, to enable him to make a valid contract, is a question of law for the court to decide, and whether said party has the required quantum is a question of fact to be found by the jury from all the evidence; and the opinions of witnesses are not competent evidence, in cases of this kind, on either point. The mental capacity of the plaintiff in this case to contract was also the direct point—practically the sole point—to be decided by the court and jury; and the admission of the testimony mentioned was, in effect, a substitution of the opinion of the witnesses on both the law and the facts of the case for that of the triers provided by law to determine them. This could not be done. The testimony of witnesses must relate to the facts, and it is the province of the court to determine the law, and the jury the ultimate facts. Witnesses, in cases involving mental capacity, after stating the facts within their knowledge, may give their opinion, formed from those facts, of the soundness or unsoundness of the mind of the party in question, but can not be permitted to express an opinion whether such party had sufficient mental capacity to make a contract or to execute a will, as the case may be. There seems to be but little or no conflict in the authorities on this subject.

**Complaints of Pain to Physician as Evidence.**—The Supreme Court of Georgia holds, in Atlanta, Knoxville & Northern Railway Co. vs. Gardner, a personal injury case brought by the latter party, that, on the trial of such an action, complaints made by the plaintiff to her attending physician of pains in designated portions of her body were not admissible in evidence in her favor, unless made under such circumstances as to be equivalent to spontaneous and involuntary exclamations or outcries, groans, convulsive movements and other physical manifestations of present pain and suffering. The court says that it devoted considerabe time and investigation to the question here presented, and examined a great number of cases in which, in one form or another, the question of the admissibility of statements of this character, made by one person to another, had been presented and determined. It finds that practically all of the courts in which the question has arisen hold that statements of present pain and suffering, made before suit brought, by a patient to his physician who has been called in solely for the purpose of examining, advising and treating him, may be given in evidence by such physician, when called as an expert witness, as part of the facts on which he bases his opinion as to the nature and extent of the patient's injuries or disease. As to the admissibility of statements of past pains or sensations, made by a patient to his physician, there is a decided conflict in the rulings of the courts, some holding that such statements are inadmissible, while others hold that it is admissible for the physician to testify to them when giving his opinion as an expert to the jury. The weight of outside authority, however, seems to be that statements or narratives of past pains and symptoms made by a patient to his physician are inadmissible. Some of the courts, impressed with the danger of opening the door of evidence for the admission of hearsay testimony, particularly in cases in which the hearsay statement may be of a self-serving nature, hold that statements of the above character, even when made by a patient to his physician, are not admissible if made after suit brought by the patient for his injuries. Others hold that they are not admissible if made to a physician or surgeon called for the sole purpose of qualifying himself to testify, as an expert, in behalf of the plaintiff in an action for damages. A few recognize no such distinction, but hold that the fact that the statements were made under such circumstances does not render them inadmissible, but is merely a circumstance to be taken into consideration by the jury in weighing the effect of such statements and the opinion of the expert based in part thereon. Continuing, the court says that while it feels some hesitancy in laying down a rule in Georgia which will run counter to what seems to be the rule generally, if not universally, accepted elsewhere, it has reached the conclusion that there is no sound reason for making any exception in cases of this character to the rule which excludes hearsay testimony. The court says, however, that the distinction between statements of pain and suffering made to a physician and such statements made to any other person, so far as admissibility in evidence is concerned, has been rejected by a number of courts, including the Supreme Court of the United States. So the court has eminent authority to sustain its view that if complaints of a person of pain or other physical sensation which produce discomfort or suffering are admissible in evidence at all, there is no sound reason for distinguishing between those made to a medical attendant and those made to any one else.

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# *Current Medical Literature*

## AMERICAN.

Titles marked with an asterisk (*) are abstracted below.

### American Medicine, Philadelphia.

*March 25.*

1 Is the Common House Fly a Factor in the Spread of Tuberculosis? J. O. Cobb, Los Angeles.
2 Case of Extensive Carcinoma of Tongue and Neck Presenting Points of Special Interest. W. S. Bainbridge, New York City.
3 Dissertation on Temperament, Diathesis, Dyscrasia, Predisposition, Cachexia, Susceptibility, Idiosyncrasy and Heredity. (Continued.) H. Wakefield, New York City.
4 Methods Employed in the Examination of Milk by City Health Authorities. A. H. Stewart, Philadelphia.
5 Nonsequitur in Medicine. H. A Fairbairn, Brooklyn.
6 Delirium and Hallucinations of Digitalis. H. O. Hall, Washington.

### New York Medical Journal.

*March 25.*

7 Medical Progress. J. A. Wright, Toledo.
8 *Influence of Infected Milk in the Diet of the Sick—Particularly in Acute Infectious Diseases, with a Report of a Series of Cases of Milk Infections in Typhoid Fever Patients. David L. Edsall, Philadelphia.
9 Various Plastic Operations. Carl Beck, New York.
10 *Osteoarthritis of the Spine; Report of Case. H. F. Stoll, Hartford.
11 *Gonococcus Infections in Children with Especial Reference to Their Prevalence in Institutions and Means of Prevention. (Concluded.) L. Emmett Holt, New York.
12 Brief Résumé of the Action of Some of the Important Somnifacients, with Clinical Notes on a New Hypnotic. A. P. Stoner, Des Moines.
13 Indications for Treatment of Gastric Hemorrhage. F. G. Connell, Salida, Colo.
14 Diagnosis and Treatment of Acute Pelvic Peritonitis of Gonorrheal Origin. B. M. Anspach, Philadelphia.

8. **Milk Infections in Typhoid.**—Although Edsall recognizes the possibility of the milk infection origin of typhoid, he believes that there is another group of cases in which the effects of bad milk are very often overlooked, chiefly because they are rendered obscure by other factors that are present. He refers to cases occurring principally in persons on a milk diet, and especially in those with acute infectious diseases in which the symptoms are caused by the milk used in the diet, but in which they are not severe enough to arouse a suspicion as to their source. The milk does not itself produce grave and evident infection, but it succeeds in making worse a disease that is already more or less bad. He reports results obtained in feeding typhoid patients only pasteurized milk. Of 92 cases of typhoid, 8 patients had diarrhea on admission. In 5 of these it subsided in three or four days. Only 4 patients developed diarrhea while under treatment. One of these, a severe case, died of hemorrhage, and the autopsy showed numerous ulcers in the colon. Edsall considers a diet composed almost exclusively of good milk the best diet for most cases of acute infectious disease, particularly typhoid fever.

10. **Osteoarthritis of Spine.**—Stoll reports a case for the purpose of demonstrating the rather common mistake made in considering the leg pains of osteoarthritis to be sciatica.

11. **Gonococcus Infections in Children.**—That gonococcus vaginitis is a very frequent disease, one to be constantly reckoned with, in institutions for children, is shown by Holt. It is also very frequent in dispensary and tenement practice and not uncommon in private practice of the better sort. In its milder forms and in sporadic cases it is extremely annoying because so intractable; in its severe form it may be dangerous to life through setting up an acute gonococcus pyemia or infection of the serous membranes, and in its epidemic form it is a veritable scourge in an institution. It is imperative that children suffering from this disease should not remain in the same wards or dormitories with other children, because it is practically impossible to prevent the spread of the disease, if infected children remain in the wards with others. If a purulent vaginal discharge is present, a systematic microscopic examination of smears made from the discharge should be a matter of routine. In the absence of microscopic examinations, a purulent discharge in a young child may be assumed to be due to the gonococcus. In cases in which the gonococcus is found, but in which there is no vaginal discharge, or only a very slight discharge, the children should also be quarantined. One of the greatest difficulties in connection with the gonococcus vaginitis, says Holt, arises from the prolonged quarantine necessary, because these cases are of very chronic character and are very resistant to treatment.

### Medical Record, New York.

*March 25.*

15 Manual Garcia: Teacher, Discoverer and Man. J. E. Newcomb, New York City.
16 *Radiotherapy and Surgery, with a Plea for Preoperative Radiations. W. J. Morton, New York City.
17 *Bile-tract Adhesions. R. T. Morris, New York City.
18 *Intratracheal Injections. J. W. Gleitsmann, New York City.
19 Present Status of Blood Examination in Surgical Diagnosis. F. E. Sondern, New York City.
20 *Preliminary Report on the Treatment of Chronic Dysentery, by Irrigation of the Colon Through the Vermiform Appendix or an Opening into the Cecum. Wm. H. Arthur, Washington.
21 A Warning and a Protector for X-ray Workers. A. Holding, New York City.

16. **Radiotherapy in Surgery.**—The nature of Roentgen and Becquerel radiations, their effect on tissue and their effect on disease, is considered by Morton. In cases of cancer he advises practicing *x*-radiations and radium radiations thoroughly

from six weeks to two months before operation, and as well after operations, for about the same period of time. He says it has been proved that radiation treatment exerts a retarding effect on the growth of some cancers, and that it cures some cases. Preoperative radiation not only increases the ratio of cures by operation, but it also transforms some inoperable cases into operable cases. It is recommended as a precautionary measure, probably quite as important as preoperative antiseptic preparation for surgical operation.

17. **Bile-Tract Adhesions.**—Morris says that very extensive functional disturbance of abdominal viscera is caused by webs of adhesion, like spider webs, that extend from the bile tract to the neighboring viscera and pull on the great sympathetic ganglia. He is convinced that many persons are suffering from the effects of such adhesions, and that often the symptoms produced have led to an operation on the gall bladder for the purpose of removing stone, when there was none to be found. Adhesions between the gall bladder and liver are, perhaps, the least harmful. Adhesions between the cystic duct and the adjacent peritoneum of other structures cause angulation of the cystic duct and give rise to symptoms that are mistaken for gallstone colic, or colic from the passage of inspissated bile. Adhesions between the bile tract and the pylorus can inhibit peristalsis and cause constipation, chronic dyspepsia, and dilatation of the stomach. Adhesions between the bile tract and the hepatic flexure of the colon can cause constipation and perhaps mucous colic. Morris believes that these "gall spiders" follow gastroduodenitis, diaphragmatic pleurisy, acute cholecystitis, acute indigestion and a group of cases without very definite diagnosis, in which there is a history of epigastric tenderness, rigors, febrile reaction, and general malaise extending over a few days. In going over these cases months or years after the acute symptoms have disappeared, we are to note if there is undue tenderness on pressure over the bile tract, a tenderness that is quite persistent. It may be absent on some days, but it is present to a greater or less degree most of the time. The patient will complain of a certain degree of discomfort in the bile-tract region, and at times, when he is most disturbed, the abdominal muscles will become rigid in order to splint the disturbed peritoneum. The pain or colic is less severe and more transitory than it is apt to be when the muscularis of the gall bladder or bile ducts is trying to force out a concretion.

18. **Intratracheal Injections.**—Gleitsman has found intratracheal injections useful in alleviating the dry cough in the beginning stage of pulmonary tuberculosis, and, at a later stage, in modifying favorably the putrid secretion. In bronchiectasis and blennorrhea the injections act almost as a specific. Many cases of asthma will be relieved. He has also treated successfully a number of cases of chronic tracheitis and bronchitis. Cases of obstinate tracheal syphilis have been cured, and the fetid pulmonary gangrene has been favorably influenced. In cases of hemorrhage the risk of increasing the hemorrhage has to be considered. As a vehicle he uses a petrolatum preparation to which may be added menthol, not more than 5 per cent., or ½ per cent. each menthol and camphor, but he has often found the camphor irritating. The list of remedies which may be used is very limited.

20. **Colonic Irrigations in Chronic Dysentery.**—Good results are reported by Arthur in the treatment of chronic dysentery by irrigation of the colon from the caput coli, utilizing the appendix as a tube through which to introduce the irrigating fluid, as suggested by Weir of New York. The usual incision is made as for appendicectomy, and the appendix is stitched to the skin. The abdominal wall is securely stitched layer by layer, down to the point where the appendix comes through. Forty-eight hours later the protruding appendix is cut off, a catheter is introduced and irrigations are begun at once. In a week all stitches are removed, the irrigating tube is left in, secured with a pinch-cock, and changed from time to time as it becomes worn out. A 1 to 2,000 quinin solution, or ¼ per cent. solution of silver nitrate is used for irrigation, 500 c.c. being poured in twice a day for six weeks or longer, if necessary. When the tube is finally withdrawn, if the opening does not close spontaneously, it is a simple matter to loosen the adhesions around the appendix, to draw it out, to ligate, cut off, and sterilize the stump with a thermocautery point, and to drop it back, closing the small opening in the abdominal wall with a single suture carried rather deeply.

### Medical News, New York.

*March 25.*

22 *Roof Gardens on City Private Houses. W. P. Northrup, New York City.
23 *Fifteen Years' Experience in the Treatment of Typhoid Fever at the Roosevelt Hospital. W. H. Thomson, New York City.
24 *Clinical Studies in Blood-pressure and Shock in Traumatic Surgery. J. M. Wainwright, Scranton.
25 The Purpose of Eyeglasses. E. M. Alger, New York City.
26 Treatment of Chronic Empyema of the Antrum, both Simple and when Combined with Empyema of the Ethmoid and Sphenoid. R. Bishop Canfield, Ann Arbor.

22. **Roof Gardens on Private Houses.**—The object of Northrup's paper is to suggest how the roofs of private houses in cities may be adapted to become safe and sunny playgrounds for children, and the results obtained on Manhattan Island are described.

23. **Fifteen Years' Experience in Typhoid.**—Thomson submits a review of fifteen years' experience in the treatment of typhoid in the Roosevelt Hospital. The total number of admissions to his wards during four months, from May to July and from September to November each year, from May 1, 1889, to Nov. 1, 1904, were 574 patients, 398 of whom were males, and 176 females. The total number of deaths was 40; 31 males and 19 females, or 7.05 per cent. The total number of patients who died within a week after admission was 23; 15 males and 8 females, or 57 per cent. of all deaths, and 80 per cent. of these did not survive the fourth day. Among the remaining 551 patients, who were in the hospital for more than a week, there were 17 deaths, or 3.09 per cent. Diarrhea occurred after the first week in 12 per cent. of the patients, and in the majority of them it was not severe. Constipation was of frequent occurrence. Tympanites was recorded in 101, or 18 per cent. About 40 per cent. of the whole number of instances of tympanites were noted in 39 soldiers admitted for typhoid contracted at various camps in this country and in Cuba during the Spanish-American War. Deducting these soldiers, tympanites occurred in 62 patients, or about 26 per cent. It was noted in cases admitted late in the disease, and in the majority of those it disappeared soon afterward under treatment. Hemorrhage from the bowel occurred in 1 per cent., and it was readily controlled. Among the 31 deaths of male patients, 7 succumbed to intestinal perforation. One case also occurred in a woman during a relapse in the fifth week, and another in a boy on the tenth day. He was operated on and recovered. Fives others were operated on but died. Delirium was noted in 60 cases, or 16 per cent. Of this number 26, or nearly 50 per cent., were delirious on admission, and 12 of these patients died within that week; the rest recovered in a week or less. Fissure of the tongue was not recorded. Tremors and subsultus were too rarely observed to figure among the clinical symptoms. Sordes on the teeth and lips never developed after admission. Pneumonia occurred in 11 patients, or 1.9 per cent.; bronchitis in 65, or 18 per cent., but it was an initial symptom in more than 40 per cent. of the cases, and was easily controlled. Peripheral neuritis occurred in 28, about 7 per cent., and in each case was limited to the feet. Phlebitis occurred in 11, and was very troublesome in 2. Relapses occurred in 62, or 18 per cent. of all cases. As a rule, the prognosis is not unfavorable, except in those patients who begin the relapse with vomiting. Relapses appear to be more frequent in that class of patients in whom the brunt of the attack falls on the intestine. The patient with symptoms of pronounced abdominal lesions, such as persistent tympanites and tongue tremor, should not be allowed solid food in any form for ten days after the temperature has fallen to normal. The general line of treatment adopted by Thomson is as follows: Early attention to the state of the kidneys. using rectal irrigations of four gallons of normal saline solution at a temperature from 115 to 120 F., twice a day. Intestinal disinfection with calomel and the systematic employment of intestinal antiseptics—from 10 to 20 grains of bismuth subcarbonate, every

three hours. If tympanites is persistent, 5 grains of sulphocarbolate of soda is added to each dose. For cardiac weakness, 1 ounce of whiskey, every three hours, given after milk; or camphor given subcutaneously in 7½ gr. doses, dissolved in 20 minims of sterilized almond or olive oil. The diet should consist of milk diluted one-half with lime water. Five grains of scale pepsin or 10 grains of saccharated pepsin are given every three hours, and to this Thomson ascribes many of his good results. The Brand bath he considers the most effective of all agents in typhoid. The treatment is described in detail, and for this reference must be made to the original article.

24. **Blood Pressure and Shock in Traumatism.**—For the purpose of ascertaining the important clinical facts in the treatment of shock due to trauma, Wainwright has made a careful study of the blood pressure by means of the Riva-Rocci sphygmomanometer. He agrees with others that morphin is of great value to remove or diminish the causative rve impulses in shock; but considers that the most effective tment *is the mechanical one.* It suffices in many desperate cases; after it has been carefully applied *strychnin and* digitalin may possibly be of value, but these drugs alone without mechanical treatment are probably *of no* value in severe cases. Nitroglycerin, atropin and alcohol are inert or harmful, *though alcohol is valuable in after-conditions. Intravenous* infusions are of real and great value. The ordinary detailed attention to avoidance of exposure, the application of artificial heat, full and even anesthesia with ether and not chloroform, rapid operative work without unnecessary handling, the copious administration of water by mouth or rectum, etc., have the same great value as always. Wainwright has found the Riva-Rocci instrument of the greatest practical value in the care of severe traumatic cases, and says there is no way in which the operator can so easily keep informed as to the true condition of the patient as by the use of this instrument. The ideal stage for operative repair of the injury is the primary pressor period. The sensory impulses which finally cause shock at first cause a stimulation of the vasomotor centers and a rise in pressure for a certain period before exhaustion supervenes. This high primary pressure is generally markedly reduced when the sensory impulses are blunted by full anesthesia. In one case after a preliminary *intravenous infusion, followed* by one-fourth grain of morphin, a simultaneous amputation *of the* upper arm and the thigh was performed with a fall of only 20 mm. in the blood pressure. In a second case, not so treated, the blood pressure fell over 100 mm. In many cases, *even when* simple mechanical or no treatment at all has been employed after reaction, the blood pressure reaches an unusually high point. No explanation for this occurrence is yet evidenced, In one case, the handling of the abdominal viscera increased the pulse rate from 70 to 150, but the sphygmomanometer showed a rise in the pressure and no alarm was felt. The pressor effect of water by mouth is shown in 2 cases. This is due to reflex action, says Wainwright, and *not to the* mechanical effect of the water absorbed. The effect is greater after carbonated water than after plain. The pressor effect of a friendly visit is shown in another case.

### Bulletin of the Johns Hopkins Hospital, Baltimore.

*March.*

27 Tumor of the Parathyroid Gland. W. G. MacCallum, Baltimore.
28 Bacillus Violaceus Manilæ. (A Pathogenic Micro-organism.) P. G. Woolley, Manila, P. I.
29 Report on the Agglutination Reactions of the Bacillus Dysenteriæ (Shiga) with the Blood Serum of Patients Suffering with Summer *Diarrhea.* C. K. Winne, Jr.
30 Repeated Copious Hemoptysis from an Aortic Aneurism, Extending into the Right Lung and Finally Rupturing into the Pleura. T. W. Clarke, Cleveland.
31 A Case of Cesarean Section Following Ventral Fixation. A. H. Clark and R. L. Bowley, Hartford, Conn.
32 Ovariotomy at Extremes of Life. Report of a Case in a Girl Aged Five. H. I. Wiel.

### The Providence Medical Journal.

*March.*

33 Recent Debts to Biology. F. P. Gorham, Providence.

### Lancet-Clinic, Cincinnati.

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35 Bacteriology and Immunity. "Cessante Causa, Cessat Effectus."—The Germ Doctrine—What It Is and What It Is Not. R. E. Haughton, Richmond, Ind.
36 Treatment of Dysentery. C. W. M'Collum, Erlanger, Ky.
37 Early Diagnosis of Cancer of the Body of the Uterus. R. B. *Hall,* Cincinnati.
38 Address, Academy of Medicine of Cincinnati. M. A. Tate, Cincinnati.

### Journal of Nervous and Mental Disease, New York.

*March.*

39 Soul *Paralysis.* H. H. Hoppe, Cincinnati.
40 *Anatomic Findings in Korsakoff's Symptom-complex. F. R. Sims, Danvers, Mass.
41 *Case of Myasthenia Gravis with Autopsy. C. W. Burr, Philadelphia.
42 *Multiple Sclerosis with Autopsy in Two Cases. S. G. Webber, Boston.

40. **Korsakoff's Symptom-Complex.**—Sims reports the ana*tomic findings* in two cases apparently of alcoholic origin in which the patients died in an early stage of the disease. The first case was an example of an acute polyneuritis with a chronic mild delirium, developing symptoms resembling cerebral hemorrhage. The second case was more chronic in onset *and more typical. In both cases there were acute degenerations* of many peripheral nerves; axonal, reaction in anterior horn cells, in cells of Clarke's column, and in some cranial nerve nuclei, and various non-systemic degenerations of intraspinal fibers, together with acute or axonal alterations of various cells of the cortex. In one case, proliferating glia cells were found in the neighborhood of altered Betz' cells of the motor cortex.

41. **Myasthenia Gravis.**—Burr's case is of pathologic interest because it adds another to the relatively large, though absolutely small, number in which the thymus gland was either persistent in the adult, or persistent and diseased, and associated with lymphoid infiltration of the muscles. It is interesting clinically because the patient exhibited visual symptoms most frequently met with in, and at one time regarded as pathognomonic of, hysteria, viz., contraction of the fields of vision, partial reversal of the red and blue fields and later color confusion. The course was typical of myasthenia, and the result was death. The lesions found at the autopsy were perivascular accumulations of free red blood cells in the region of the red nucleus and a lymphoid infiltration of the muscles.

42. **Multiple Sclerosis.**—Webber has seen in private practice over 20 cases which have been diagnosticated as sclerosis. Of these about half were marked with a question; the others were sufficiently well defined and the diagnoses need not be doubted. Two cases in which he obtained autopsies were diagnosticated as tumor of the brain and locomotor ataxia, respectively. In *the latter case, appendicitis was found and the locomotor ataxia* was discovered to be multiple sclerosis. In the first case the symptoms of headache, dizziness, vomiting and impairment of motion and sensation of the whole left side seemed to justify a diagnosis of tumor of the brain. A certain amount *of nystagmus of the left eye,* when the eye was turned to one side, was the only symptom strongly suggesting sclerosis, and this might well have been owing to the defective action of muscles caused by tumor. In the case diagnosed as locomotor *ataxia, the symptoms* were not clearly indicative of that disease, nor were they the usual symptoms of multiple sclerosis. The explanation of this is found in the fact that the patches of sclerosis were in the posterior *columns of the cord,* while those in the brain were not numerous *nor* large enough to give characteristic symptoms. In the first case, the cord was much less affected than the brain, which was comparatively small. Scattered throughout the cerebrum and cerebellum in the white *substance, especially on the right side,* were numerous patches of sclerosis, varying from a minute point to the size of a bean. The right corpus striatum and the right corpus dentatum were much changed. Sclerotic patches were found in the *pons in the floor of the fourth ventricle and around the aque*duct of Sylvius. There were some spots in the medulla and one spot in the cord about an inch below *the medulla.*

### Annals of Surgery, Philadelphia.

*March.*

43 *Diagnosis and Treatment *of Fracture* of the Carpal Scaphoid. E. E. Codman and H. M. Chase, Boston.
44 Fractures of the Tarsal Bones. D. N. Eisendrath, Chicago.
45 *Osteoplastic Resection and Laminectomy. W. S. Bickham, New York.

46 Case of Cervical Rib with Symptoms Resembling Subclavian Aneurism. J. B. Murphy, Chicago.
47 *Cases of Intussusception in Children Treated by Laparotomy. C. H. Fagge, London.
48 *Id. C. Wallace, London.
49 Interstitial Hernia. C. G. Cumston, Boston.
50 Relation of Mechanical Distention to the Etiology of Appendicitis. C. Van Zwalenburg, Riverside, Cal.

43. **Fracture of Carpal Scaphoid.**—Codman and Chase summarize their paper as follows: Cases of simple fracture of the scaphoid which have not been treated or which have been treated as sprains, by a short period of fixation, followed by massage, active and passive motion, etc., seldom, if ever, have union of the fragments. If the joint is kept fixed for a number of weeks immediately after the injury, union may occur, but the functional result is not perfect, although better than in cases of non-union. It is too late to obtain union if fixation is not attempted within a few weeks after the injury. Excision of the proximal half of the broken scaphoid promises a better ultimate result than any other form of treatment. Since operation, nevertheless, is an undesirable risk, a reasonable attempt should be made to obtain union by fixation, if the case is seen soon after injury. Operation should not be delayed many months, because secondary joint changes may occur and chronic arthritis result. The advisability of operation in cases of long standing is doubtful, and must be decided by the amount of disability present in each individual case. The clinical history of 18 cases is given in detail.

45. **Osteoplastic Resection and Laminectomy.**—Bickham discusses the general considerations of the osteoplastic resection of the spine and of laminectomy and their relative values, the features common to both operations and the technic of each. The paper is well illustrated and considers the subjects exhaustively.

47. **Intussusception in Children.**—Fagge discusses 18 cases. Of the patients under one year, 14 in all, 10 were stated to have been entirely breast-fed. In 16 of the 18 cases a tumor was felt either through the abdominal wall or by rectum. In 15 of these 16 cases the diagnosis was easy and treatment was prompt. In 1 case a diagnosis of tuberculous peritonitis was made, and in consequence of this operative interference was undertaken too late. This was probably a chronic intussusception in which the acute exacerbations were caused by an increase of the invagination. Both the cases in which no tumor was found ended fatally. Ten of the 18 cases were of the single ileocecal type. One case was of the enteric type, and was of interest in that the ileum at the apex of the intussusception was so much narrowed as to suggest the possibility of a congenital stricture at that spot having given rise to the intussusception. There were 7 double intussusceptions, 3 colic-ileocecal, 2 ileocolic-colic, and 2 enteric ileocecal. In 1 case there was possibly a triple intussusception, for the ileum was prolapsed into or through the ileocecal valve and there was a well marked and apparent invagination of the caput coli some distance from the right of the valve, so that this may have been colic ileocolic-colic and not ileocolic-colic, as mentioned in the statistics. In 17 cases a primary laparotomy was performed at the earliest possible moment; in the eighteenth case inflation had been twice tried and failed. Except in 2 cases the incision was made on the right side of the middle line, with the center at or below the level of the umbilicus; in the majority it was through the right semilunar line. Six patients died between four and twenty hours after the operation from shock and toxemia, which in four cases was clearly due to the resection of the bowel. One of these patients was so ill that nothing more than the formation of an artificial anus could be attempted. In 1 case the cause of death could not be determined. Death occurred on the fourth day. Fagge's immediate results show a mortality of 39 per cent.; if in this list are included two babies who were readmitted within a few days of their discharge, and whose deaths were indirectly a result of the intussusception, the mortality increases to 50 per cent. Both these babies died 23 days after laparotomy. Excluding 5 irreducible and gangrenous intussusceptions, the mortality is 15.4 per cent.

48. **Id.**—Wallace reports on 20 cases, 12 males and 8 females, Nineteen were enterocolic and 1 was of the colic variety. Of the former class 10 were single and 9 were double intussusceptions. The single intussusceptions were of the ordinary ileocecal type. Of the double tumors there were four cases of the enteric-ileocecal type and 5 cases of the ileo-colic-ileocecal type. Of the 16 cases in which a definite statement was made there was a history of improper feeding in only three instances. The extremes of duration before operation were seven hours and four days. The treatment was primary abdominal section. The mortality was 20 per cent. If the cases in which a resection was performed are excluded the mortality falls to 11.11 per cent. Under 1 year of age there were 16 cases, with 3 deaths. The causes of death were: 1, Bursting open of the wound; 2, thrombosis of cerebral veins; 3, gangrene of cecum and inanition, and 4, shock; extensive resection of nearly the whole of the large gut.

### The Interstate Medical Journal, St. Louis.

*March.*

51 Some Thoughts on Exophthalmic Goiter. H. Tuholske, St. Louis.
52 Historic Review of the Development of Knowledge of the Relations of the Mind and the Nervous System. C. G. Chaddock, St. Louis.
53 Cholecystitis. J. L. Wiggins, East St. Louis.
54 Acute Appendicitis. J. M. Grant, St. Louis.
55 *A Simple Heat Method of Sterilizing and Storing Catgut—Preliminary Report. W. Bartlett, St. Louis.

55. **Heat Method of Sterilizing Catgut.**—A preliminary report is made by Bartlett of his method of sterilizing catgut. The treatment of the raw catgut is as follows: The strands are cut in convenient lengths, say 30 inches, and made into little coils about as large as a silver quarter. These coils are then strung like beads on to a thread so that the whole quantity can be conveniently handled by simply grasping the thread. The string of catgut coils is dried for one hour at a temperature of 180 F. and then for a second hour at 220 F., the change in temperature being accomplished gradually. The catgut is then placed in liquid albolene, where it is allowed to remain until perfectly clear, in the sense that the term is used in the preparation of histologic specimens. This is usually accomplished in a few hours, though it has been Bartlett's custom to allow the gut to remain in the oil over night. The vessel containing the oil is next placed on a sandbath and the temperature raised during one hour to 320 F., and this temperature is maintained for a second hour. By seizing the thread with sterile forceps the catgut is lifted out of the oil and placed in a mixture of iodin crystals, 1 part in Columbian spirits, 100 parts. In this fluid it is stored permanently, and is ready for use in twenty-four hours; the thread is then cut and withdrawn. It is important that the gut should be thoroughly cleared before the oil is heated, in order that the temperature of the center of the strand will be as high as that of the oil outside. Nor should the oil be removed from the gut before placing it in the storing solution, since catgut which is perfectly free from oil is so very sensitive to the action of water that it readily untwists and becomes tangled after it is used in a wound but a few moments. The iodin rapidly permeates the strand, which is found stained black after a few hours, and consequently the surgeon may have the assurance that he is introducing an antiseptic as well as a thoroughly sterile suture material.

### The Chicago Medical Recorder.

*March 15.*

56 *Comparison of the Abdominal and Vaginal Routes for the Removal of Uterine Fibroids. H. T. Byford, Chicago.
57 Fracture of the Patella. W. C. Jones, Chicago.
58 Prevention and Reduction of Deformity in Pott's Disease. C. F. Eikenbary, Chicago.
59 Postpartum Hemorrhage. H. J. Dern, Chicago.
60 Diagnosis of Influenza or Acute Catarrhal Fever. J. R. Ballenger, Chicago.
61 *The Dunbar Antitoxin Method of Treating Hay Fever. Report of Cases. O. J. Stein, Chicago.
62 Pruritus Ani. C. J. Drueck.
63 Myringoplastic Surgery with Exhibition of Case. C. S. Losey, Chicago.
64 *Extirpation of a Carcinoma of the Rectum with Implantation of Bowel into Vagina. J. C. Stubbs, Chicago.
65 [illegible] iller,

56. **Uterine Fibroids.**—Whether a uterine fibromyoma or a fibromatous uterus should be removed by the abdominal or vaginal route depends largely on three things, says Byford: 1, The relative danger to the patient; 2, the possibility of completing the operation in a satisfactory manner, and, 3, the surgical training of the operator. Each route has its distinct and evident advantages. In all cases adapted to it, the vaginal route should be preferred on account of its comparative safety. In doubtful cases, particularly in those in which conservative surgery is called for, the abdominal route should be given the benefit of the doubt. Vaginal hysterectomy should be limited to cases in which the size and shape of the lower part of the tumors or uterus are such that the cervix can be pulled down near enough to the vulva to enable the operator to secure, without delay, the uterine arteries on either side of the cervix, as well as the middle hemorrhoidal arteries behind. Unless the uterine mass is very small, adhesions of the adnexa high up in the pelvis constitute a contraindication to the vaginal method, although the cervix itself is comparatively low. One of the chief advantages of the abdominal route is the possibility for conservative surgery.

61. **Dunbar Antitoxin in Hay Fever.**—Thirty-six cases of hay fever treated with Dunbar's antitoxin are reported by Stein. Regarding the remedy more as a prophylactic one, Stein found that in all but a few cases it proved efficient. When used during the height of an attack it usually modifies the severity, but never entirely relieves the patient. In one case the symptoms were easily prevented from developing when the remedy was used in time. One case obtained no relief whatever. In another case the severity of the symptoms was lessened so that the patient was scarcely disturbed. A peculiar feature in this case was that the patient could not use the serum in the eyes without producing considerable redness and swelling of the conjunctiva. To obtain the greatest degree of immunity Stein found that the remedy must be applied before the onset of an attack. When the disorder is once fully established patients do not obtain the relief expected.

64. **Carcinoma of Rectum.**—The lower border of the tumor in this case was about three and a half inches above the anal margin. As a preliminary procedure a hysterectomy was done. About two months afterward Stubbs performed a Kraske operation, removing the tumor by excision. As the severed ends of the gut could not be approximated, Stubbs made an opening through the vault of the vagina, through which the gut was invaginated into the vagina. Convalescence was slow but uneventful, and the patient, aged 57 years, says she has not felt so well in years. Defecation takes place through the vagina. After each morning bowel movement, the patient flushes the vagina and inserts a small cotton tampon, and is comfortable for the next twenty-four hours. The tumor was removed just twelve months ago.

### Washington Medical Annals.

*March.*

66 *Aneurism of the Descending Thoracic Aorta. W. M. Barton, Washington.
67 *Myoma of the Intestine. G. W. Wood, Washington.
68 Position in Placenta Previa. M. F. Thompson, Washington.
69 *Postoperative Intestinal Obstruction. J. F. Mitchell, Washington.

66. **Aneurism of Descending Aorta.**—The death of Barton's patient was caused by a rupture of the sac into the left pleural cavity. The aneurism was not diagnosed until a few hours before the death of the patient. The only symptom was that of pain in the epigastrium, apparently connected with the digestive function. Radiographic examination showed a mass extending from the seventh to the eleventh dorsal vertebræ, but in the presence of persistent epigastric pain, spinal rigidity and exaggerated knee-jerks, a tentative diagnosis was made of Pott's disease, and the patient was treated accordingly. Later exploratory operation was advised on the theory that the tumor was a gastric neoplasm. The operation was performed with the result mentioned. The total length of the sac was seven inches, and it has caused erosion of the bodies of the seventh, eighth, ninth and tenth dorsal vertebræ. The shape of the aneurism was almost cylindrical. Its wall contained two perforations.

67. **Myoma of Intestine.**—Wood reports a case of this kind which was diagnosed as an appendicitis, the tumor being located in the right lower abdominal quadrant. An incision was made, about a pint of pus escaped, but a concretion and gangrenous mass was all that showed where the appendix had been. The patient recovered, but six months afterward the wound began to suppurate. It was opened again and a number of small calcareous masses were removed. Later she had chills and a swelling developed over the liver, which was diagnosed as an abscess of the liver. An operation substantiated this view. At the autopsy a tumor was found binding together the ileum and duodenum. A normal appendix was also found and there was no evidence of appendicitis.

69. **Postoperative Intestinal Obstruction.**—Mitchell has had two cases of intestinal obstruction following operation in a series of 36 cases, both these cases occurring in patients in whom the appendicitis had gone on to the stage of abscess formation. Both cases terminated successfully without operative intervention. Mitchell says that many cases can be relieved by palliative measures, but that operation should not on this account be delayed; the operative procedure should be as simple and as rapidly executed as possible.

### Archives of Pediatrics, New York.

*March.*

70 *Case of Pulmonary Osteoarthropathy Limited to the Terminal Phalanges in a Child. D. J. M. Miller, Philadelphia.
71 Acute Pyelitis of Infancy; report of a case. R. G. Freeman, New York City.
72 *Lesions of the Upper Air Passages *Due to Hereditary Syphilis.* J. C. Sharp, New York City.
73 Umbilical Cord Hernia. J. P. Crozer-Griffith, Philadelphia.
74 *Causes of Incontinence of Urine in Children. J. R. Clemens, St. Louis.

70. **Pulmonary Osteoarthropathy.**—The case cited by Miller was that of a girl 8 years old who had a marked kyphosis embracing the first seven dorsal vertebræ with a compensating anterior curve from the latter to the sacrum. The thorax was quite prominent, the ribs distinct, and the sternum pushed forward. There was a marked rosary distended abdomen and emaciated arms and legs. The facial expression was that of an old woman. The urine was normal; the temperature from 99 to 101 F.; there was hectic flush, cough and signs of general bronchitis. The terminal phalanges of the fingers were markedly clubbed, the nails curved like a parrot's beak, elevated, of a rosy red hue and brittle. The fingers were long, and from hyperextension and enlarging of the terminal phalanges, resembled closely a drumstick. The toes presented conditions similar to those of the fingers, but very much less marked. There was no thickening of the radii, ulnæ, tibiæ or fibulæ; the joints were entirely unaffected, nor had there ever been any pain in the latter or in the deformed fingers. The face was broad and the head large and square, the malar bones prominent and the teeth carious. Examination of the lungs was positive. The case is cited as one of true osteoarthropathy, the deformities being limited to the distal phalanges in contradistinction to the club finger of chronic heart and lung affections. At the autopsy there was found marked interstitial pneumonia and purulent bronchitis, lesions sufficient to account for the phalangeal changes observed during life.

72. **Syphilis of Upper Air Passages.**—Sharp makes it a practice to give a course of antisyphilitic treatment to all young children with hypertrophy of the cervical and submaxillary nodes. He believes that cases of hereditary syphilis of the upper air passages are often erroneously diagnosed as cases of tuberculosis. All children suffering from enlarged cervical nodes are not the victims of hereditary syphilis, but by giving them the treatment early he thinks they are rendered less susceptible to serious illness. He says that many cases of postpharyngeal abscesses are caused by hereditary syphilis, but advises great caution in arriving at a diagnosis of this or of any other ulcerative condition of the upper air passages. The clinical appearances of ulcerations in hereditary syphilis in the mouth and pharynx differ very slightly from those of a

tertiary ulceration, except that in the latter there is more infiltration of the surrounding tissues. Gumma of the trachea is rare. When a child presents itself with a history of dyspnea a differential diagnosis must be made between papilloma of the trachea, tubercular infiltration or abscess and gumma. Ulcerations of the upper air passages due to hereditary syphilis may exist when none of the classical symptoms considered necessary to a diagnosis of the disease are present, viz.: Hutchinson teeth, keratitis and the frog-like appearance of the face due to the flattening of the bridge of the nose.

74. **Incontinence of Urine.**—In Clemens' experience the four commonest causes of incontinence of urine in children, in the order of their frequency, are: 1, Hyperacidity of urine (persisting by day and night); 2, adenoids (nocturnal incontinence—true eneuresis); 3, chronic interstitial nephritis (nocturnal and diurnal incontinence); 4, alkalinity of urine (due to fixed alkalies—incontinence by day and night). In some 148 cases Clemens has used belladonna and has been successful in all except those due to organic disease such as nephritis, and in some cases of hyperacidity or alkalinity, where the pendulum of urinary reaction in primary cases of hyperacidity swings too far over to the alkaline side, the converse obtaining in those primary cases of alkalinity. The great difficulty lies in bringing about just sufficient neutralization and keeping it constant. These are the cases that prove so disappointing.

### Medical Examiner and Practitioner, New York.

*February.*

75 The Pulse in Life Insurance. E. F. Morrill, Chicago.
76 The Medical Department in Its Relation to Life Insurance Selection. C. L. Greene, St. Paul.
77 The Use of Intoxicating Liquors and Life Insurance. T. Millman, Toronto.
78 The Medical Director—His Responsibilities. H. A. Warner, Topeka, Kan.
79 Should Accidents be Considered a Factor in Life Insurances? B. E. Jones, Kansas City.
80 Location in Its Bearing on Life Insurance. Ira W. Porter, Omaha.

### Indiana Medical Journal, Indianapolis.

*March.*

81 Treatment of Gonorrhea. F. C. Valentine and T. M. Townsend, New York City.
82 Diagnostic Value of the Reflexes. E. C. Reyer, Indianapolis.
83 Headaches of School Children. F. A. Morrison, Indianapolis.
84 Efficient and Painless Method of Skin-Grafting. B. Caffee, Terre Haute.
85 Health Conditions on the Isthmian Canal. I. Dyer, New Orleans.

### The Medical Standard, Chicago.

*March.*

86 Uric Acid Calculus—Its Clinical Significance. B. Robinson, Chicago.
87 The Importance of an Early Diagnosis and Prompt Surgical Treatment of Cholecystitis With or Without Stone. B. Holmes, Chicago.
88 Revival of Medical Learning. E. J. Kempf, Jasper, Ind.
89 Diphtheritic Paralysis. M. McGory.
90 Bladder Troubles in Actual Practice. J. E. Beatty.
91 Present Status of Malignant Tumors. H. Taylor.

### Albany Medical Annals.

*March.*

92 Pathology and Bacteriology of Acute Meningitis. W. T. Councilman, Boston.
93 Symptoms and Diagnosis of Cerebrospinal Meningitis. H. L. Elsner, Syracuse.
94 Treatment of Cerebrospinal Fever. C. G. Stockton, Buffalo.
95 The Eye Symptoms of Cerebrospinal Meningitis. A. E. Davis, New York City.

### The New York State Journal of Medicine, New York City.

*March.*

96 Pneumonia. A. Lambert.
97 Health of the Nation. W. Wyman, Washington, D. C.
98 Health of New York City. T. Darlington, New York City.
99 Health of the Port of New York. A. M. Doty, New York City
100 Health of the State of New York. D. Lewis.
101 Ocular Reflexes. S. W. S. Toms, Nyack, New York.

### Pennsylvania Medical Journal, Athens.

*February.*

102 Need for Systematic Study of Individual Characteristics as Manifested by Organism's Reaction to Sensory Stimuli. W. K. Walker, Dixmont.
103 Practical Points Concerning Smallpox. Wm. M. Davis, Pittsburg.
104 Tests for Occult Blood in the Feces and Their Clinical Significance. J. D. Steele, Philadelphia.
105 Paraffin as a Surgical Medium. M. D. Ritchie, Pittsburg.
106 Twelve Years of Emergency Surgery. E. E. Wible, Munhall, Pennsylvania.
107 Disease of the Blood-Vessel System as the Underlying Cause of Nervous Diseases. T. Diller, Pittsburg.
108 Early Diagnostic Signs of Cancer of the Uterus. F. Blume, Pittsburg.

### Denver Medical Times.

*March.*

109 Pregnancy Complicated by Tumors of the Uterus. D. S. Fairchild, Des Moines.
110 Remarks on the Pancreas. B. Robinson, Chicago.
111 Hygiene of Pregnancy and Labor Directions. T. M. Burns, Denver.

### St. Louis Courier of Medicine.

*February.*

112 Baby Incubators on the Pike. J. Zahorsky, St. Louis.
113 Cystitis. C. C. Thayer, Clifton Springs, N. Y.
114 Bronchiectasis in a Four-Year-Old Child. J. R. Clemens, St. Louis.

### The Post-Graduate, New York.

*March.*

115 Case of Unilateral Annular Scleritis. D. B. St. John Roosa, New York. With Report of the Pathologic Examination. L. Oatman, New York.
117 Case of High Myopia with Successful Operation. P. E. S. Peck.
118 Case of Supracondylar Fracture of the Humerus with Musculo-Spiral Paralysis. F. Hawkes.
119 Operative Treatment of Fractures in General. W. S. Bickham, New York City.
120 Treatment of the Consumptive Poor as Carried on at the Post-Graduate Hospital Dispensary from the Year 1898 to 1905. D. M. Barstow, New York.
121 Advantages of Prompt Surgical Interference in Acute Otitis Media. R. Opdyke.
122 Case of Acute Pott's Disease at the Twelfth Dorsal Vertebra in an Adult. A. F. Chase, New York.

### Kentucky Medical Journal, Louisville.

*March.*

123 Importance of the Establishment of a Detention and Isolation Hospital for Contagious and Infectious Diseases, and also the Necessity for the Institution of a Sanatorium for the Care and Treatment of Tuberculosis in the City of Louisville. M. K. Allen, Louisville.
124 Isolation and Detention Hospitals for Country Districts. A. T. McCormack, Bowling Green, Ky.
125 Ventilation of Public Buildings. E. H. Mark, Louisville.
126 Need of Municipal and State Laboratories. V. Robbins, Louisville.
127 Problem of the Milk Supply of Cities. H. E. Tuley, Louisville.
128 Obligation of the Physician in Attendance on Patient with Infectious Diseases—Practical Methods for Preventing the Carrying of Infection—Methods of Disinfection for Hospitals, for Private Houses and for the Clothing and Person of Exposed Individuals. P. F. Barbour, Louisville.
129 Prevalence and Mortality of Smallpox in Countries Protected by Compulsory Vaccination Compared with Same in America. J. T. McClymonds, Lexington, Ky.
130 Differential Diagnosis of Smallpox. J. I. Whittenberg, Louisville.
131 Operation of Vaccinaton.—How It Should Be Performed to Be Most Effective and Least Dangerous—Imperfect Methods at Hands of Physicians Responsible for Failure of Protection—Bovine and Human Virus. A. Dixon, Henderson, Ky.
132 Contribution by the Kentucky State Board of Health: Rules and Regulations for Management of Smallpox, etc.
133 Differential Diagnosis of Diphtheria. D. M. Griffith, Owensboro, Ky.
134 Mortality of Diphtheria Before and Since the Introduction of Serum Therapy. A. O. Pfingst, Louisville.
135 Scarlet Fever—Has Its Causative Agent Been Isolated and Identified? Differential Diagnosis. J. G. Cecil, Louisville.
136 Typhoid Fever Prophylaxis. L. Southgate, Covington, Ky.
137 Tuberculosis—What is Being Done to Prevent Its Transmission? J. A. Flexner, Louisville.
138 Bovine Tuberculosis and Its Relation to Public Health. F. T. Eisenman, Louisville.
139 Prophylaxis of Venereal Diseases. J. T. Windell, Louisville.
140 Contagious Eye Diseases. J. M. Ray, Louisville.
141 Sanitation in Cuba—The Abolition of Yellow Fever—Malaria—Problems to Be Met in Construction of Panama Canal. W. Bailey, Louisville.

### Vermont Medical Monthly, Burlington.

*January 25.*

142 Etiology and Pathology of Pneumonia. S. M. Chisholm, Bennington, Vt.
143 Erythema Nodosum. William Lindsay, Montpelier, Vt.
144 Case of Epilepsy. E. J. Melville, St. Albans, Vt.
145 Treatment and Control of the Tuberculous Patient in His Home. Lawrence F. Flick, Philadelphia.

### Alabama Medical Journal, Birmingham.

*February.*

146 Address, Jefferson County Medical Society. L. G. Woodson, Birmingham.
147 Etiology, Pathology and Public Prophylaxis of Tuberculosis. K. von Ruck, Asheville, N. C.
148 The "Open Air" or "Hygienic-Dietetic" Treatment for Consumption. E. A. Jones, Raton, N. M.

### The Texas Medical News, Austin.

*February.*

149 Carbolic Acid. R. W. Skipper, Lovelady, Texas.
150 Trachoma. Crittenden Joyes, Fort Worth.

### Pacific Medical Journal, San Francisco.

*March.*

151 A New Clinical Chart. H. D. Power, San Francisco.
152 Home Rules for a Doctor's Happiness. E. Wescheke, Oakland.
153 Typhoid Fever. Winslow Anderson, San Francisco.

## FOREIGN.

Titles marked with an asterisk (*) are abstracted below. Clinical lectures, single case reports and trials of new drugs and artificial foods are omitted unless of exceptional general interest.

### British Medical Journal, London.

*March 11.*

1 Myasthenia Gravis. J. Taylor.
2 New Methods of Studying Affections of the Heart. J. Mackenzie, Burnley.
3 *Some Practical Aspects of Conjunctival Bacteriology. F. Ferg [illegible]
4 *Case o [illegible] Due to the Micrococcus Gonorrhea. W. [illegible]

3. **Conjunctival Bacteriology.**—Fergus urges that bacteriology should be in daily use in every eye clinic: First, because it is an important aid to diagnosis, as the classification of conjunctival inflammation is becoming more and more a bacteriologic one. Second, because it is a guide in determining the safety of any operation. Disaster can often be prevented by a thorough bacteriologic investigation before attempting to operate. Third, because it materially influences our views of treatment. Prophylaxis is a matter of the first importance. The teachings of modern bacteriology give us important indications as to when an eye should or should not be bandaged. A bandage retains septic secretions, although sometimes it is of use in preventing an ulcer from becoming ectatic.

4. **Gonococcus Endocarditis.**—Hunter reports a case which is of interest from several points of view. It is an additional proof of a direct infection of the endocardium by the gonococcus. The subject of the disease presented well-marked pathologic changes throughout the genital tract. The lesions were clinically very suggestive of old gonorrheal infection. The specific micrococcus could not be demonstrated owing to the presence of many other micro-organisms. The aortic valve of the heart was the seat of the endocarditis, and the inflammatory process was of a distinctly malignant character.

### The Lancet, London.

*March 11.*

7 Peritonitis, a Bacteriologic Study. L. S. Dudgeon and P. W. G. Sargent.
8 Changes Produced by Inflammation in the Conjunctiva. M. S. Mayou, London.
9 Toxic Mental Disorders. G. H. Savage.
10 *Diagnosis and Treatment of Hypertrophy of Pylorus in Infants. G. F. Still.
11 Acute Ascending Paralysis in Cases of Chronic Cystitis. T. J. Walker.
12 Further Notes on the After-history of Cases of Pyloroplasty. G. G. Turner.

10. **Hypertrophy of Pylorus in Infants.**—Of 20 cases seen by Still 17 were in males and 3 in females. Only 1 case began as early as the third or fourth day, and only 3 others within the first week. The symptoms very rarely date from birth. Of his own cases, 12 certainly, and 1 other probably, dated symptoms (vomiting) from before the end of the fourth week; in the remaining cases vomiting began between the fourth and the end of the seventh week. He has never seen a case in which vomiting began later than this. Vomiting *per se* is not characteristic of congenital hypertrophy of the pylorus. It is, however, the symptom which in most cases suggests the presence of this condition, but it is only when it is associated with the characteristic signs, the physical peristalsis of the stomach and the palpable thickening of the pylorus that it becomes diagnostic. Features of the vomiting which are suggestive of the disease are: 1, Its forcible character; 2, its occurrence in an infant who has been carefully fed; 3, its persistence in spite of such alterations of feeding and such general treatment as will usually control the vomiting of dyspeptic conditions. Its large amount shows that the vomit represents more than one feeding. The association of chronic constipation with this persistent vomiting is of some importance in diagnosis. Examination of the abdomen for the true characteristic signs, visible peristalsis of the stomach and palpable thickening of the pylorus, must be carried out very carefully. It must be recognized also that these two signs are only present at intervals, so that cursory inspection and palpation of the abdomen may result in overlooking the condition altogether. The abdomen should be examined immediately after the infant has been fed, and it is well also to watch the abdomen during the taking of the food. Still says that no doubt the diagnosis can be made with all but certainty from the visible well-marked peristalsis of the stomach alone, but that in every case the evidence should be clinched by feeling the thickened pylorus. If the disease were incurable by other than far less dangerous methods, says Still, we might well accept the chance that surgery offers, but there are cases in which no operation is necessary, and there are other cases in which the child's chance of surviving operation may be greatly increased by the use of simpler measures for a time until the infant is in a better position for operative treatment. Much time and much care must be given the case for many weeks if the infant's life is to be saved. Many cases are improved temporarily by change of diet, but it is probably very rarely that a cure can be effected by such treatment alone. Stomach washing is the method which, apart from operation, promises to be of most value. It is Still's opinion that when careful feeding with some thin fluid, such as whey and raw meat juice, after a trial of a few days, fails to arrest the loss of weight, stomach washing should be given a trial in every case, the duration of its trial to be determined by the effect on the weight. The stomach is washed out twice daily for several weeks just before a feeding, and once daily for some weeks longer with a solution of sodium bicarbonate, 2 grains to the ounce, through a Jacques soft-rubber catheter, No. 12 or 14. The frequency of the washings and the duration of the treatment depend on the improvement in the vomiting and especially on the weight. Two of his cases recovered under this treatment. In many cases stomach washing was not tried or was given up because it was assumed that the condition was incurable without operation. Before any definite data can be obtained the treatment advised must be given a more extensive trial.

### Journal of Tropical Medicine, London.

*March 1.*

13 *Use of Cyllin in Sprue. W. Hartigan.
14 Breeding and Rearing of Foreign Cattle in the Tropics. P. N. Gerrard.
15 Relative Position of Schistosoma Cattoi and "Bilharzia" as Regards Pathogeny. G. L. Crimp.

13. **A New Remedy in Aphthae (Sprue).**—Sprue, says Hartigan, is a complaint so baffling, so difficult to cure, recurring so frequently after apparent recovery, that any hint as to its treatment is worth recording. The disease shows itself in various forms, and many seemingly favorable cases prove most intractable, while others make rapid and complete recoveries. In the majority of cases which quickly respond to treatment the disease is confined to about the lower eighteen inches of the bowel, while in the intractable cases the upper portion of the colon and probably lower part of the ileum are involved. Hence, in the former, the almost certain efficacy of copious antiseptic lavage, while in the latter they have little or no effect on the actual course of the disease. Little is known of the etiology of sprue. Its fatality is due to inability to assimilate food. The usual symptoms are wasting, sore tongue and frequent and abundant frothy stools. The patients are unable to take the mildest or simplest nourishment on account of the pain caused to the mouth and tongue and the almost immediate evacuation thereby brought on. The value of antiseptics applied locally to the bowel has been proved. Boric acid, however, produces headaches and increases digestive troubles. Carbolic acid is ill-borne; salol makes the stools more healthy, but does not cure the disease; perchlorid of mercury and naphthol are inefficient. Cyllin, a new disinfectant of the cresol series, given in the form of intestinal platinoids, 3 m. cyllin in each, is well borne, the number of stools rapidly diminishes, the bowels are regulated, and the general condition of the patient improves. The platinoids may be given every second hour if necessary, but rarely more than eight a day are required. They are best given an hour after food. All pain and tenderness over the lower part of the abdomen disappear; there is a steady increase in weight, and the patient is soon able to return to the ordinary diet. The cases treated solely by rest and milk diet take a much longer time to get

well, and their recovery is often not complete. Relapses, particularly on returning to a hot climate, are frequent.

### Bulletin de l'Académie de Médecine, Paris.

*Last indexed page 991.*

16 (Year LXIX. No. 7.) Emploi du perborate de soude (eau oxygénée à l'état naissant) dans la pratique oto-rhino-laryngologique. M. Bloch.
17 *Nouveau biberon gradué (graduated nursing bottle). Variot.
18 *Traumatisme et tuberculose; influence des mouvements sur l'évolution des ostéo-arthrites tuberculeuses. Lannelongue and Achard.
19 *Fièvre jaune et moustiques (yellow fever). A Chantemesse and F. Borel.
20 Fièvre typhoide à début brusque, ayant simulé d'abord l'appendicite, puis la granulie. Mort. A l'autopsie ni appendicite, ni méningite, mais lésions de fièvre typhoide avec péritonit[illegible]
21 (No. 8) * [illegible] la bile et ses principes [illegible] E. Gérard.
22 *Crachoirs (cuspidors). Fournier.
23 *Fièvre jaune et moustiques (yellow fever). A Chantemesse and F. Borel.
24 Transmission héréditaire homeomorphe d'un rétrécissement mitral de la mère à un fétus mort-né de six mois (inherited mitral stenosis). Boinet.
25 (No. 9.) *Quelques propos sur la paralysie générale de la syphilis. Fournier. (Commenced in No. 8.)

**17. Graduated Nursing Bottle.**—The graduated scale of the amount of milk the infant should have at different ages is stamped in relief on the bottle. Variot compiled his scale from comparison of the results of researches of Russian, German and Austrian confrères and those of Emmett Holt of New York and Morgan Rotch of Boston, controlled by extensive personal research. His scale is as follows:

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|---|---|
| First week | 30 gm. |
| Second week | 45 gm. |
| Third week | 60 gm. |
| Fourth week | 75 gm. |
| Sixth week | 90 gm. |
| Ninth week | 105 gm. |
| Third month | 120 gm. |
| Fourth month | 135 gm. |
| Fifth month | 160 gm. |
| Seventh month | 180 gm. |
| Ninth to twelfth month | 200 to 220 gm. |

The bottles are made in two sizes. The first is stamped with the scale up to the third month, and the larger bottle with the rest of the scale. The intervals between meals are also stamped beside the scale, and the number of meals, corresponding to the age of the infant. These graduated bottles have been found very practicable to use instead of ordinary milk bottles, and milk is distributed regularly in them at several French charity milk stations.

**18. Traumatism and Tuberculosis.**—Lannelongue and Achard emphasize the danger of exercising a joint which is the seat of a tuberculous affection. Their experiences with a number of animals showed that inoculation with pure cultures of tubercle bacilli, followed by traumatism of a joint, did not entail the localization of the infectious process in the injured joint. If the inoculation was made with pus or sputa, however, the traumatism invariably resulted in the production of a suppurative lesion in the injured joint. These results harmonize with what is observed in the clinic. The blood of a tuberculous subject is rarely virulent, and a local injury of a bone or joint is seldom followed by the development of a local focus of tuberculosis. Further experiments showed that a joint inoculated with tuberculosis remained latent or healed when the joint was kept at rest, but if it was gently mobilized even for five minutes twice a day the surfaces of the joint and the ends of the bones developed serious lesions and contracture in less than a month. Nothing of the kind occurred in the controls nor in the animals whose joints were kept at rest except for a single blow from a hammer once. These findings demonstrate the absolute necessity for immobilization of tuberculous joints, with or without extension, and they emphasize the evils of leaving a tuberculous joint free to be used at will, and especially the dangers of exercising the joint to increase its functional play.

**19. Yellow Fever and Mosquitoes.**—Chantemesse and Borel review the various epidemics of yellow fever that have occurred in Europe, and show how they all fit into the frame of our knowledge of the habits of the stegomyia. The 43d parallel of latitude has always been recognized as the northern limit of yellow fever in Europe. Sailing vessels are liable to be weeks traversing the torrid zone. This allows the stegomyia time to breed and yellow fever appears on board in successive series of cases. Steam vessels, on the other hand, traverse the torrid zone quickly and bring the stegomyia into a climate unfavorable for its propagation so that the vessels are practically sterile when they enter a northern harbor.

**21. Solubility of Cholesterin.**—Gérard describes research on the solubility of human cholesterin in beef bile and in the bile salts, and on the influence of lecithin, soap, etc., on this solubility. He ascribes biliary lithiasis mainly to the action of the colon bacillus. As this bacillus penetrates into the gall bladder it hydrolyzes, that is, draws out the water from the biliary salts, acting specially on glycocol and taurin, and thus precipitating the cholesterin which these salts had been holding in solution.

**22. Wax Paper Cuspidors.**—Fournier's new inexpensive models are made of paraffined cardboard and contain a little powdered charcoal. They are made to fit into a special standard if desired. They are burnt and fresh ones provided as needed.

**23. Prophylaxis of Yellow Fever.**—Chantemesse regards yellow fever as not contagious in France, owing to the absence of the stegomyia. There have been less than fifty cases in a century. Ships arriving from an infected country with a clean bill of health or even with one or two cases of yellow fever evidently contracted in some foreign port, may be given the freedom of the port. But a series of cases occurring on the trip compel more rigorous measures, and the ship should be fumigated, especially if a sailing vessel. The sick should be taken to the isolation hospital or to the ordinary hospital. A ship entering an infected port should anchor to windward of the shore. The crew should never be allowed to sleep on shore, and all the men coming on board should be examined afresh every morning. Everything on the ship containing water in which mosquitoes could possibly deposit their eggs should be kept scrupulously clean and watched daily. The cargo is seldom a source of danger unless it contains damp wood, bananas or fresh fruits. A ship carrying a cargo of this kind must carry on an active campaign against mosquitoes, and the physician should refuse to allow any sick with yellow fever on board when the ship is ready to leave, although convalescents can be received. During the trip, the inhabited quarters should be aired and ventilated incessantly to drive out mosquitoes, especially the hot kitchens, engine rooms, etc. If a case of yellow fever develops the patient must be kept under mosquito netting for three days.

**25. General Paralysis of Syphilis.**—Fournier has a record of 112 cases of syphilis in which the date of the primary sore and of the development of general paralysis later is positively known. The shortest interval was three years. In more than four-fifths of all cases the paralysis developed between the sixth and the fifteenth years, with the overwhelming majority at the tenth year. In 223 cases of cerebral syphilis with a hemiplegic onset, the first cerebral symptoms were noted during the first year in 25, during the second year in 26, during the third year in 39, and during the fourth year in 29, fully two-thirds of all the cases thus developing during the first five years. There was a record of insufficient antisyphilitic treatment in nearly every case, and in 15 out of the 112 cases there were certain other predisposing or adjuvant causes, worry in 8 cases, abuse of liquor in 5, great venereal excesses in 3, and decided nervous heredity in only 2. A significant fact brought out by his researches is that the early syphilitic infection in these cases of general paralysis had been almost invariably mild. Investigation of 243 cases of early malignant syphilis failed to disclose a single instance of general paralysis in this group, although other nervous manifestations were frequent. Out of 112 patients with general paralysis in private practice, all belonging to the educated and well-to-do class, only 5 had taken a systematic course of antisyphilitic treatment. Fournier qualifies these figures as disheartening and encouraging at the same time. They are encouraging because they show that systematic antisyphilitic treatment will reduce the number of cases of general paralysis later, but they are disheartening, as they reveal that even a well-conducted, sysvelop on healed wounds. He thinks that the causal factors are the separation of some germinal cell thus left free to wander, and irritation of the soil, affording favorable conditions for the wandering germinal cell to settle down and to proliferate independently. Trauma is liable to create both these factors at once.

**45. Study of 7,081 Cancer Cases.**—The 7,081 deaths from cancer formed about 10.6 per cent. of the total mortality recorded by the life-insurance company in question. The particulars are arranged for comparison in tables. They fail to show any marked influence of liquor habits on the prevalence of cancer. There are, further, no data which incriminate trauma. Cancer claimed more victims among the well-to-do policyholders than among the working classes. Of all the causal factors, heredity looms up as the most important. A number of other interesting points are brought out in regard to the frequency of involvement of various organs, age, sex, etc. The proportion of gastric cancers was about the same, a trifle over 40 per cent. in both the well-to-do and the working classes, but with cancers of some other organs the former supplied much the larger contingent.

### Nordisches medicinisches Archiv, Stockholm.

*Last indexed page 255.*

46 (XXXVII, Surgery, No. 1.) *Pararenal Cysts Communicating with Renal Pelvis.—Ueber die mit dem Nierenbecken kommunizierenden pararenalen Zysten. A. Krogius.
47 *Ueber die "Esmarch'sche Blutleere" nach Unglücksfällen (tourniquet after accidents). A. Ahlberg.
48 (Surgery, No. 2.) Symbolæ ad morphographiam membri virilis. R. Bergh.
49 Bacterial Relations of Accessory Sinuses and Their Means of Defense Against Bacteria. F. Törne. (Commenced in No. 1.)
50 Hämatometra im Nebenhorn (in accessory cornu). E. Essen-Möller.
51 (Internal Medicine, No. 1.) *Syringomyelie. H. J. Vellesen and F. Harbitz.
52 *Ovaritis. B. C. Vedeler.
53 (Internal Medicine, No. 2.) *Ueber die Addison'sche Krankheit in Schweden. [illegible] (Commenced in No. 1.)
54 Note sur un mucor [illegible]u cuir chevelu de l'homme (of scalp). [illegible]
55 *Le goutte et le bacterium coli commune (gout). H. Trautner.

**46. Pararenal Cysts Communicating with Renal Pelvis.**—Krogius has found records of 9 such cases and adds another to the list. The cysts were of congenital origin and some had attained enormous size. In all except Fenger's case, the cyst walls were of connective tissue only. Some of the cysts required resection of part of the kidney to remove them completely.

**47. Dangers of the Tourniquet.**—Ahlberg relates three instances of serious injury resulting from the application of the Esmarch bandage to arrest hemorrhage after an accident. In one case the tourniquet had been applied very tightly and left for a day and a half above the severed brachial artery. There had been considerable hemorrhage and the patient, a robust young man, soon succumbed. The fatality may have been due to the acute anemia alone, but there is a possibility that the products of decomposition after ligation of the artery may have induced intoxication of the organism, already enfeebled by the anemia, when the constriction was removed. The tourniquet should never be left long, but should be removed at the earliest possible moment. It should be applied as close to the wound as possible. In 2 of his cases the limb had to be amputated at a much higher point than would have been required by the trauma alone. It should be more generally emphasized that all the parts below a tourniquet left for more than three hours, are exposed to the great danger of tissue death. Another important point to be borne in mind is that the injured part should have all the cleansing manipulations done before the tourniquet is removed. It prevents foreign matters and fluid from being sucked into the circulation, and consequently they should all be cleaned off before the circulation through the parts is restored.

**51. Syringomyelia.**—A pronounced and typical case of syringomyelia in a woman of nearly 60 is described in all its aspects. The anatomic findings are compared with those of a case of cavity formation in the spinal cord, secondary to hemorrhage.

**52. Ovaritis.**—Vedeler contributes his article in English. It is based on 66 cases of ovaritis encountered in 5,903 patients. He restricts the term to a comparatively rare, painful, small swelling of the ovary, generally of the right. It is extremely rare in virgins, most frequent in women who have borne children. It is accompanied by pain in one side of the abdomen, and sometimes by lumbar pain, but without other local or constitutional disturbances. It seems to have no influence on menstruation. The genitals were normal otherwise in only 9 of the 66 cases. Six exceptional cases are described in detail. In one the symptoms suggested ovaritis with recurring dizzy headache, in a patient with complete amenorrhea. The attacks recurred at intervals, growing less intense with years. It is possible that congestion of abortive menstruation may have simulated ovaritis in this case. In a few others the symptoms were evidently of nervous origin.

**53. Addison's Disease in Sweden.**—Hultgren reviews in tabulated form the 59 cases of Addison's disease that have been reported in Sweden. The table includes 3 personally observed. Suprarenal extract was given in a few cases, but only one patient was much benefited. This was a man of 36 who felt "restored to health" after six weeks of daily administration of suprarenal tablets (3x3). He continued to take the tablets now and then for two years, whenever he felt depressed, and always with good effect. The disease at the end of two years became rapidly worse and soon terminated fatally. Temporary benefit was obtained in some of the other cases from iron, arsenic, cod-liver oil and cinchona, but rest for body and mind proved the most successful element in treatment.

**55. Gout and the Colon Bacillus.**—Trautner has been devoting much research to the relations between the colon bacillus and gout. He describes the technic of numerous tests which have conclusively demonstrated, he thinks, that the proportion of uric acid in the urine of a person subject to gout increases during times of partial or decided constipation. He believes that, under the influence of imperfect evacuation of the bowels, a reducing substance is generated by the chemical activity of the ordinary colon bacillus. This reducing substance acts on the residue of the food, and probably has some close connection with the uric acid in the urine. It is more than probable, he affirms, that the substance formed in the colon by the bacteria becomes transformed into xanthin and into uric acid during its passage into the blood. He regards it as probable that the first manifestation of gout is a mucous colitis. The *Bacterium coli commune* is the initial agent of gouty affections. Copious diuresis accompanied by high density should suggest an abnormally large proportion of uric acid. Food containing much animal albumin seems to increase the proportion of uric acid in the urine. In conclusion, he states that the "purin theory" probably has no foundation in fact.

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## NEW PATENTS.

RECENT PATENTS OF INTEREST TO PHYSICIANS.

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| 783173 | Combined chest and throat protector, Berry A. Brown, Franklin, Ohio. |
| 783280 | Surgical bandage cloth, Ella Jagers, Salina, Kans. |
| 783128 | [illegible]uald A. Oleshak, Philadelphia, Pa. |
| 782878 | [illegible] Ruff, Quincy, Ill. |
| 783226 | [illegible] E. Seeley, Los Angeles, Cal. |
| 783921 | Exercising apparatus for babies, Wm. P. Abell, Duffield, England. |
| 783566 | Bed pan, Ashbel P. Barlow, St. Joseph, Mich. |
| 783924 | Combined tweezers and blackhead extractor, Frederick J. Boehm, New York, N. Y. |
| 783856 | Massage machine, May Chaffin, Huntington, W. Va. |
| 783688 | Medicine dropper, John C. Dujat, New York. |
| 783827 | Convertible water bag and fountain syringe, Thomas O. Gasaway and J. S. Aydelot, Marion, Ind. |
| 783859 | *Capsule stopper for bottles,* Ewald Goltstein, Cologne, Germany. |
| 783971 | Sputum-cup and holder therefor, Christian W. Meinecke, Jersey City, and D. F[illegible] |
| 783466 | Artificial limb, Stephan [illegible] Germany. |
| 784018 | Suture-supporting plate, [illegible]s Angeles, Cal. |
| 783563 | Invalid-bed, Luther J. Zuerner, and A. F. Bahra, Jr., Newcastle, Pa. |
| 784024 | Dynamo electric massage instrument, Albert Barrett, and W. Condon, Kansas City, Mo. |
| 784399 | Medicine spoon, George C. Hohein, Norfolk, Va. |
| 784425 | Surgical apparatus, Henry W. Phillips, Norfolk, Va. |
| 784194 | Medicine bottle, Fannie S. Victor, Atlanta, Ga. |
| 784830 | Medicine spoon, Martin L. Beistle, Ingram, Pa. |
| 784995 | Surgical needle, Thomas C. Edwards, Salinas, Cal. |
| 784632 | Inhaler, Wm. M. Ricketts, Columbus, Ohio. |
| 784809 | Massage apparatus, Eugene W. Schneider, New York. |
| 784643 | Massage machine, George F. Trotter, Louisville, Ky. |
| 784645 | Inhaler, Hubert L. White, Utica, N. Y. |

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## *Address*

### SURGICAL TUBERCULOSIS IN THE ABDOMINAL CAVITY WITH SPECIAL REFERENCE TO TUBERCULOUS PERITONITIS.*

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The foundation of modern medicine lies in the scientific study of the dead. Postmortem revelations made possible our present knowledge, but we must not forget that it teaches terminal states and has led to that therapeutic skepticism which has been so prominent a feature of the last decade of medical thought.

The reaction from this nihilistic tendency has come from the surgical side, which has permitted of an examination of diseased processes while in an early stage with corresponding possibilities of cure.

There are many hard worked statistics handed down to us which are perfectly true in themselves but which are misleading in their general application. Among these are the statistics of Eisenhardt, who, in 1,000 subjects, dead from tuberculosis, examined in the Munich Pathological Institute, found 563 with intestinal tuberculosis and not one primary. Quite true; yet, if we studied 1,000 deaths in diabetes we should find a considerable percentage dying of tuberculous bronchopneumonia, and, so far as postmortem proof could be produced, there would be small evidence of the diabetes. Compare a little alteration in the islands of Langerhans in the pancreas with the gross lesions in the lung. This is equally true if the primary focus is in the abdomen, it is likely to be overshadowed by the secondary lung changes. Tuberculous strictures in the intestine go to the surgeon, likewise tuberculous fallopian tubes and appendices, and not to hospitals for tuberculosis. The gross changes which took place in the susceptible lung tissue may all be secondary to a local primary focus in any part of the body, yet at postmortem this could not be demonstrated.

Sims Woodhead, in 127 autopsies in children, found 100 with tuberculous mesenteric glands, and so firmly had the belief in the universal primary lung theory become that lengthy articles have been written to show how the mesenteric glands developed secondarily to a chest lesion. The advent of surgery into the abdominal cavity is rapidly eliminating these errors and experimental work is confirming the clinical testimony which has been produced. The tubercle bacillus is a true parasite, existing only in living tissue and having no saprophytic properties. Therefore, it does not often destroy its host, otherwise it would kill itself. It is usually the secondary pyogenic infections which terminate life.

In America, somewhat over 60 per cent. of cadavers show some form of tuberculosis, active or healed, and in Germany as high as 86 per cent. of cadavers have evidence of tuberculous lesions. The tubercle bacillus may pass the intact intestinal mucous membrane into the lymph spaces, where they are ordinarily destroyed. In Adami's laboratory, it was found that leucocytes passed out on the free surface of the upper intestinal tract and picked up bacteria, especially bacilli along with particles of fat, and carried them into the lymphatic glands, where they were annihilated. In this way they assisted to secure that relative sterility of the duodenum and upper jejunum which has rendered operations for gunshot and other perforations in this locality so much more favorable than in the ileum and colon. Evidence has also been produced to show that through the portal circulation, bacteria are carried to the liver and there destroyed or strained out with the bile, and in this infected bile lies the direct etiology of gallstones. If the action of the liver is interfered with, the power to overcome or eliminate bacteria is lessened. Kelynack, in 121 cases of cirrhoses of the liver, found that 10 per cent. had tuberculous peritonitis.

That infected particles are carried to the liver for destruction is further shown by the embolic pneumonia which often follows on gastric operations on account of the communication with the general circulation, through venous anastomosis about the cardiac orifice of the stomach, although its main channel of venous return is through the portal system. The liver and intestines, under equal conditions, are not subject to this disaster on account of their limitation to a portal circulation.

Practicing, as my brother and I do, in an agricultural community, we have long noticed the relative infrequency of pulmonary tuberculosis, evidently due to less frequent exposure to inhalation sources of infection, while abdominal, bone, joint and lymphatic disease of tubercular origin are common. Clinically, I cannot consider the milk question settled by Koch's dictum that bovine tubercle bacillus is not infectious to man, and, for that matter, he offered no proof which Theobald Smith had not previously brought out. Koch merely showed that healthy animals did not acquire human tuberculosis, neither does the average healthy human being acquire human tuberculosis. It requires either an inherited or acquired susceptibility to the disease.

One can not help believing that much of the extrapulmonary tuberculosis has to do with uncooked milk, which is a common article of diet in the country. The difficulties of transporting raw milk to cities limit its use and lead to sterilization by cooking. The work of Salmon, Ernst, and a host of other accurate observers has shown the possibilities of infection through the milk and food supply. The lungs are the primary source of tuberculosis in perhaps 80 per cent. or more of cases, but this should not lead us to ignore undoubted instances of non-pulmonary origin. Next to the lungs, the most susceptible localities to tuberculous invasion are the tonsils, where the lymphatic tissue lies directly exposed on the mucous surface, and in the intestine and appendix, in which practically the same conditions exist. The structure of the follicles of the tonsils corresponds very closely with that of the large follicles of the intestine and of Peyer's patches. These tissues may permit the passage of tubercle bacilli, but are not necessarily involved themselves.

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* Address on Surgery at the meeting of the Mississippi Valley Medical Association, Cincinnati, 1904.

Inoculation tuberculosis is best studied in surface infections, such as the postmortem finger of demonstrators of anatomy, and as seen in butchers and hide handlers. Regional lymphatic invasion often occurs and tubercle bacilli may be found in the glandular involvement. There is a marked tendency for the trouble to remain local.

Statistics of postmortem examinations may err in tracing primary lesions on account of the overwhelming character of secondary and terminal conditions. Statistics from the operating room are liable to error because of the limited character of the examination. In St. Mary's Hospital, from Oct. 1, 1894, to Oct. 1, 1904, a period of ten years, there have beeen 6,408 abdominal operations performed. Of this number 5,687 were intraperitoneal and 184, or about 3 per cent., were for some variety of tuberculosis. Localized intestinal tuberculosis occurred 21 times, 13 cases were primary and 8 uncertain.

Tuberculosis of the intestine occurs in three forms: 1, multiple ulcers due to inoculation from sputum swallowed by tuberculous patients, which at once demonstrates the possibilities of intestinal infection; 2, single, or at most a few, ulcers usually in the ileum, which have a marked tendency to heal with stricture formation. Such cases come to the operating table with obstruction; 3, conglomerate tuberculosis, usually of the cecum at its juncture with the ileum, giving rise to tumor and having the macroscopic appearance of carcinoma. The last two forms are often, if not usually, primary and due to accidental inoculation. The stricture-forming ulcer of the ileum may be resected or an anastomosis around the diseased part may suffice for permanent cure (ileocolostomy).

The tumor-forming variety, with its masses of fibrous tissue in and about the cecum, are best excised closing both intestinal ends and doing a lateral ileocolostomy. The latter operation, without excising the diseased focus, leaves an ulcerative mass to its own devices, and the opportunity for removing perhaps the only tuberculous lesion should not be lightly disregarded. In some cases greatly enlarged tuberculous lymph glands exist in the mesentery, and as many as possible should be removed.

Tuberculous disease of the appendix we have found as a localized process 29 times, with no deaths, in 1,888 operations for appendicitis. (in addition to this number the appendix was removed 629 times not included in these statistics, because secondary to other operations in the abdomen.)

The lymph nodes in the mesoappendix were often invaded and showed typical caseation on section. Localized surgical tuberculosis of the intestine and of the appendix have occurred in our series of cases in both male and female in nearly equal numbers.

Tuberculosis was found localized in the fallopian tubes 44 times without tuberculous peritonitis, the tubal lesions being securely walled off. As to how the trouble gets to the tubes, there is much disagreement. Is it through the circulation or is it, like gonorrhea, an ascending infection; or is it possible that tubercle bacilli, finding their way to the peritoneal cavity from any source, at once attack this favorable soil? Tuberculosis of the vulva, vagina and cervix is very rare. Tuberculosis of the uterus is not only rare but is largely confined to young girls before puberty and to old women after the menopause, while tubal tuberculosis is typically a disease of menstrual activity, being most common from the twentieth to the fortieth year. The ability of the tubercle bacillus to pass through the intact mucous membrane and to travel in the lymph spaces to a suitable soil like the fallopian tube is suggestive of an ascending infection. We have recently had a typical case of acute tuberculous pus tubes with tuberculous peritonitis, coming on three weeks after confinement and operated on two months later.

Those interested in the question should read the masterly monograph of Murphy on "Tuberculosis of the Female Generative Organs." I will, however, take this opportunity to call attention to the relative frequency of tuberculous peritonitis in the male and female. At the operating table we found about four females to one male. Osler found somewhat over two females operated on to one male. In other words, between the ages of 20 and 40 years, tuberculous peritonitis is certainly very much more frequent in females, and, so far as direct sources of infection are concerned, the tube is the one which may explain this difference in frequency. *There were 89 cases of tuberculous peritonitis, with 3 deaths.*

The clinic of this hospital is drawn largely from a fixed agricultural community and the majority of cases operated on who left the hospital improved but failed to stay well, returned for further treatment. A considerable percentage did not maintain the improvement, and, in the course of years, patient after patient would return with relapse of the peritoneal condition or some other form of tuberculous infection. Some returned for further operation as many as four or five times. It became evident that, in a considerable percentage of cases, there was some source of reinfection of the peritoneum after apparent cure.

About three years ago, Dr. J. B. Murphy called our attention to the fact that in tuberculous peritonitis with ascites, in women, the fallopian tube of one or both sides would usually be found open, that is, an eversion of the fimbriæ with thickening of the tube, and especially of the mucous membrane. We have had an opportunity to verify this in a considerable number of cases. We further noted that, in some instances, after removal of the fluid by laparotomy with cure of the peritoneal condition there could later be detected in the region of the tubes masses which had not previously been felt. This observation was confined to a few individuals, but it led us to examine the pelvic condition of every case of tuberculous peritonitis which was operated on. Investigation showed marked tuberculous thickening of the tubes in the majority of such patients. On removal, these tubes showed typical lupus of the mucous membrane, with cheesy deposits, and in a number of specimens we were able to stain tubercle bacilli in the tissues. In a minority of cases the tubes were found to be normal.

Having under observation a small number of patients in whom simple laparotomy had failed to permanently cure tuberculous peritonitis, we began to do a radical operation, performing hysterectomy with removal of ovaries and tubes. The condition of the uterus and ovaries, on examination, did not justify so mutilating a procedure, the tubes showing unmistakable evidence that they alone were the source of reinfection. It became clear that in tuberculosis of the peritoneum in the large majority of women a lupus of the mucous membrane of the tube was the source of infection of the peritoneum, and that the latter condition was secondary to the former, a conservative process on the part of Nature in the attempt to absorb products of tubal tuberculosis turned loose in the peritoneal cavity. Some of these operations have been among the most trying of our surgical experience, adhesions matting the intestines, bladder and uterus into a confused mass, with free fluid in the abdominal cavity, the tubes occupying the part of a roughly walled-off foreign body. In several instances the anatomy was indistinguishable, the uterus and tubes being located by tracing a round ligament from the abdominal wall downward. One is in constant fear of doing irreparable damage to the bowel or other viscus with a resulting fistula which would be impossible of closure. By patience and care we found it possible to enucleate tuberculous tubes in 26 cases of tuberculosis of the peritoneum. If the adhesion wall was fairly good, a pus tube containing a quantity of tuberculous débris and cheesy deposits would be found. The intestine, and especially the sigmoid, often showed a thick white degenerative patch, caused by extension from the tubes. Sometimes a tube of one side would communicate freely with the peritoneal cavity, while the opposite side would be more or less boxed off and contain products of the tuberculous disease. Occasionally a tube on one side would be converted into scar tissue with complete obliteration of the mucous membrane cured by natural processes, while, on the other side, active disease would be present. This last variety was most interesting as showing that Nature did cure at times and by the usual process of development and contraction of fibrous tissue.

In practically all these cases the peritoneal involvement was greatest in extent neár the seat of local infection; this has been generally noted and heretofore ascribed to gravity. It is more likely to be due to proximity to the seat of infection. This is further borne out by those occasional patients with limited collections of fluid caused by tuberculosis of the pelvic peritoneum and which so much resembles ovarian cystic tumors. Spencer Wells accidentally cured the first case under misapprehension that it was an ovarian tumor. In tumor-like collections of fluid an open fallopian tube will usually be found to communicate with the interior of the sac. Two such cases in our late experience demonstrated this condition perfectly. There was a sacculation, having the physical appearance of an ovarian cystomata, the size of a seventh month gestation; the tubes were tuberculous and projected well into the cavity. In both cases we were able to completely enucleate the new-formed sac and the tubes.

Theories as to the reasons for the curative effects of laparotomy in tuberculous peritonitis are too numerous to mention; Gatte gives more than 20. It appears to us that simple laparotomy, with removal of the fluid, acts in two ways: 1, that in tubal disease the fluid mechanically separates the fimbriated extremity of the tube from the surrounding tissue; 2. after removal of the fluid, contact with neighboring structures. with resultant adhesion, may follow. This prevents peritoneal reinfection and confines the products to the pelvis, and accounts for the lateral pelvic masses which are sometimes developed after the disappearance of the fluid. It also enables Nature to bring her resources to bear on a localized focus and develops the self cure that was noted in the cases mentioned. Undoubtedly the operative manipulation causes serum to be poured out and thereby increases the peritoneal powers of absorption. Lupus of mucous membrane in any part of the body is a most stubborn form of tuberculous disease. The fallopian tube is no exception to the rule and, in addition, seems to have a selective affinity for tubercle bacilli, in this respect nearly resembling the alveoli of the lungs. As previously noted, the frequency of tuberculous peritonitis in women is several times greater than in men, and this certainly confirms in a remarkable degree their peculiar liability on account of tubal lesions. In this agreeing with the splendid work of Williams.

In carrying out these investigations of the pelvic conditions in women with tuberculous peritonitis, we found in a minority of patients no tubal disease, but a well-marked chronic appendicitis with enlarged glands in the mesoappendix, and on section the glands showed typical caseation. In many instances the region of the greatest distribution of tubercular peritoneal nodules could be shown near the appendix. In some cases neither the tubes nor the appendix was diseased and the origin was doubtful. In four persons tuberculous peritonitis was found limited to the upper abdomen above the transverse colon. These patients had well marked symptoms and were operated on under the impression that the trouble lay in the gall bladder, duodenum or stomach. The ages ranged from 36 to 56. The primary source of infection we could not trace; 3 were in women, 1 in a man. Since January 1, this year, we have operated on 16 cases of tuberculous peritonitis; of these 11 were women, in 9 of whom the origin was in tuberculous tubes, 1 in the appendix, 1 unlocated; 5 were in men, 3 with tuberculosis of the appendix and cecum, 2 unlocated.

Fenger, in a most exhaustive analysis of the subject, sustained the opinion by Borchgrevink, who claimed that medical cures were as numerous as operative, and that it was not proved that tuberculous peritonitis was a surgical disease, even in its most favorable form, in which ascites was the prominent feature. So strong was he in his conviction that tumor-like collections of fluid existing in the pelvis were not excepted. The assertion was too sweeping and one which the trend of surgical thought had failed to sustain. Ochsner, in a most excellent résumé of this subject before the American Surgical Association, 1902, proved beyond question that laparotomy and evacuation of the ascitic accumulation had a most beneficial effect on the disease. While simple abdominal incision and drainage has failed to cure all the cases, it did cure many and usually gave relief for a time, and if reinfection could be prevented the cure might be expected to be permanent in a much larger number.

Can we prevent relapse? Certainly we can in many instances. Of the 26 radical tubal operations we have made on cases of tuberculous peritonitis, 25 recovered; of these 7 had been operated on by simple laparotomy from 1 to 4 times previously. In not a single patient as yet has another operation become necessary, and, as contrasted clinically with a preceding group of equal number, the favorable results are most striking. There is usually a temporary continuance of the peritoneal effusion. but reinfection has not occurred. The outcome where the appendix has apparently been the seat of trouble has been favorable but not so brilliant as in the tubal form of disease.

It has appeared to us that ascites has been more common in women with tubal tuberculosis, while in both males and females fibro-plastic forms have been relatively more common where the appendix or an unlocated intestinal lesion has been made the source of peritoneal invasion. This later condition is probably due to a mixed infection, but the secondary organism is evidently shortlived and we find only its results at operation. We have not often operated on the fibroplastic adhesive form and we have been slow to operate in any case during the acute stage.

In tuberculous peritonitis in women, we evacuate the fluid and place the patient in the Trendelenburg position, packing off the general abdominal cavity in the usual manner. The pelvic organs, appendix and cecum are examined. If the fallopian tubes, appendix and cecum are diseased, they are removed. The stumps and walls of tubercular abscess cavities are dried and a little sterile iodoform rubbed in and the abdomen closed without drainage. Drainage sometimes leads to secondary mixed infection with resulting fistulæ, which have a great tendency to become fecal.

In men, the incision is placed to the right of the median line over the appendix. The fluid is evacuated, the appendix and cecum examined, after which a radical operation, if indicated, is performed.

From the narrative of facts and observations so briefly set forth, I think we are justified in the belief that the failure of simple laparotomy and evacuation of fluid exudate in tuberculous peritonitis to maintain a high place in surgery is due to reinfection from lesions in the mucous membrane of the fallopian tube, appendix or some part of the intestinal tract. We have been treating a symptomatic peritonitis instead of removing the source of disease. That many times the infecting lesion cannot be discovered is true, and it is equally true that not all cases can be explained in this way. Experience teaches that under expectant treatment many of the primary lesions are cured by natural processes. Simple laparotomy and drainage aids recovery in a remarkable manner. Radical operation on the primary lesions in tuberculous peritonitis will greatly increase the percentages of cures and prevent reinfection of the peritoneum.

In conclusion, it seems reasonable to suppose that tuberculous peritonitis has its origin in a local focus in practically every case, as is the fact in septic peritonitis. Peritoneal reinfection may be prevented if the local focus can be removed. Whether the patient will regain and maintain general well-being must depend to a large extent on whether the local focus thus removed is primary or secondary and, if secondary, as to the possibilities of cure of the chief seat of disease.

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**Secret Nostrums in the United States.**—The United States is a land in which patent medicines, and proprietary medicines flourish exceedingly. The drug consumption per capita of the inhabitants of America undoubtedly exceeds that of any other country. Some of the "remedies" sold are good, some are indifferent, and some are distinctly bad. But the worst feature of the situation is that the ordinary individual is unable to discriminate between the different kinds and is wont to take whichever one is recommended to him by the druggist or appears from the description on the bottle as the most likely to benefit the complaint from which he is suffering or imagines that he is suffering. The present situation has been largely brought about by the physician himself.—*The Lancet.*

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## *Original Articles*

# STUDY OF THE ECONOMIC COURSE OF CONSUMPTION IN WAGE-EARNERS.[*]

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BALTIMORE.

It has been aptly said, and with some degree of truth, that a well-bred person never insists on facts. The person who forces his facts into the minds of others by the brute force of figures is usually called a statistician and is frequently considered a bore. Like other pests, however, he has his usefulness and, while it may not be the good fortune of the statistician to adorn a tale, it frequently falls to his lot to point a moral, and in medicine the brute force of figures will always be the court of final resort.

It is my misfortune to-day to have to offend from both points of view, to insist on facts and to drive them home by figures, but I will feel that I have not offered myself in vain as a sacrifice on the altar of science if I can aid in any way in the elucidation of the course of a great economic, social and medical problem.

Though I have placed the medical portion of this trilogy last and the economic first, I would not by any means maintain that the medical aspect of this problem comes last or the economic first in point of importance, as many statisticians hold, for the statistician is, as a rule, prone to assign a place of minor importance to the medical side of tuberculosis. My own inclination still is to place the medical side of the problem in the first place.

Of course, by medicine we do not understand the mere "practice of physic," which, while having something, no doubt, to promise from the curative standpoint, has nothing at all to promise in the way of prevention; I would understand rather the larger control of sanitary affairs by medical men from the medical standpoint. The physician, however, has yet to understand and to appreciate the importance of the economic and social sides of tuberculosis. This paper deals with the economic course of the already existing disease (a matter of lesser importance from the physician's viewpoint than the economic problems concerned in its development). It is certainly a practical necessity, however, for the members of our profession to be acquainted with all sides of the problem with which they will first (of all persons, I believe) be called on to deal.

The statistical considerations will give, in my opinion, the most complete and just estimate of the problem as well as the most perfect view of all its sides and phases. From the dry prehistoric bones the naturalist has reconstructed the pterodactyl, the megatharium, and other monsters of the pliocene period. We may reconstruct in the same way the modern apparition of tuberculosis from statistics dug from the dry conglomerate mass of figures with almost equal patience and labor. Statistics will incline, I believe, to give the greatest importance at the present time to the economic and social sides of tuberculosis. The remarkable sympathy of the economic and tuberculosis curves can leave no doubt whatever as to their intimate relations and much of the present improved state of tuberculosis must be laid to one or the other of these factors.

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[*] Read in the Section on Hygiene and Sanitary Science of the American Medical Association, at the Fifty-fifth Annual Session, June, 1904.

We do not appear as yet to be able to lay the greater part of the present better conditions to the credit of medical progress, although I believe the latter to be undoubtedly the proper direction from which to attack this problem, as it comprises the direction from which to attack all other problems, namely, the standpoint of causation.

It will be well to remember, however, that we are called on to deal with actual and not ideal conditions, and there is always a large contingency connected with any such ideal generalization as Pasteur's statement of the possibility of the elimination of any parasitic disease. (*C'est dans le pouvoir humain de faire disparaitre du monde tous les maladies parasitaire.*)

The course of tuberculosis in any individual case includes a number of profound, divergent and far-reaching effects, produced by a common cause. Even considering alone the mere economic effects of tuberculosis and ignoring the social and moral problems connected therewith, we have to deal with very complex conditions.

The accurate study of one class of these factors, namely, the personal item of economic loss, is a foundation on which it appears all correct economic deductions must be built.

My personal experiences have convinced me of the possibility of obtaining a high degree of accuracy in this study—sufficient at least for accurate and correct statistical deductions.

It is a study of this character made in Maryland in the work of the State Tuberculosis Commission which I believe to furnish a sufficiently accurate and substantial foundation for statistical deductions—to justify its presentation before this Section of the Association.

The economic course of tuberculosis is wholly distinct from the clinical course, but closely related to and dependent on the latter. It does not affect the economic course of tuberculosis how many persons are suffering from the disease or to what extent so long as their economic powers remain unimpaired; and the economic history of the individual does not become apparent in the columns devoted to loss until such a depreciation occurs. The duration of time during which the individual may have tuberculosis with unimpaired earning capacity depends not only on his constitution and the virulence of the disease, but on the nature of his occupation and the pressure of necessity. It goes without saying that the earning capacity of an individual whose occupation requires long and severe muscular labor, such as a coal miner, will be sooner impaired by the onset of tuberculosis than in the case of a corporation attorney, bookkeeper or other person engaged wholly in mental work.

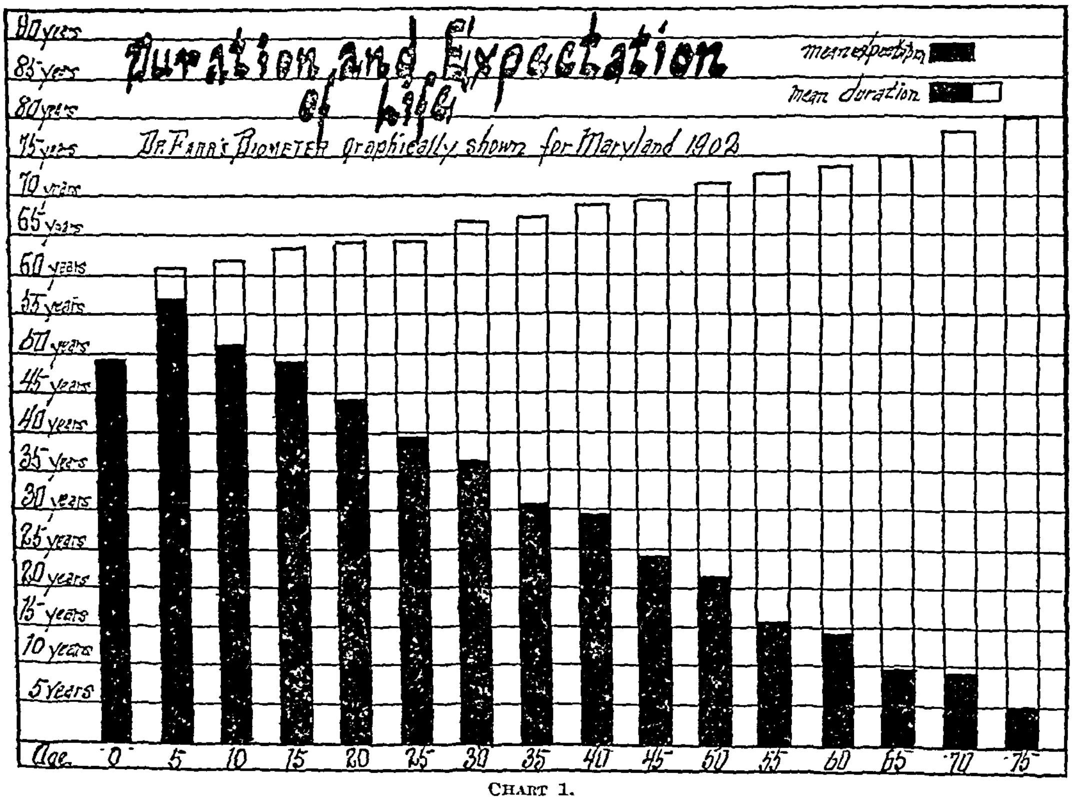

Chart 1.

While these effects may be grouped under generalizations, they are far from being general conditions and their individual potentialities are inextricably blended to produce a heterogeneous whole.

As a merely general classification we may consider the economic course of tuberculosis from some three or four standpoints.

1. Economic effects on the state.
2. Economic effects on the local community (town, county or village).
3. Economic effects on family.
4. Economic effects on the individual.

It is questionable if the generalizations, calculations and guesses by which many social economists have endeavored to determine the amount and directions of these influences have aided at all in the clearness of our conceptions. It may be safely said at least that the conclusions have, as a rule, been most inaccurate.

The course of any case of tuberculosis will accordingly naturally fall into three periods.

1. *Working period* or period of unimpaired earning capacity, including the period of health from the commencement of a gainful occupation and the early period

of disease from the onset up to the time of diminished earning capacity.

2. *The period of partial disability,* or period of irregular work at reduced wages. This period may last in individual instances until the advanced stages of the disease.

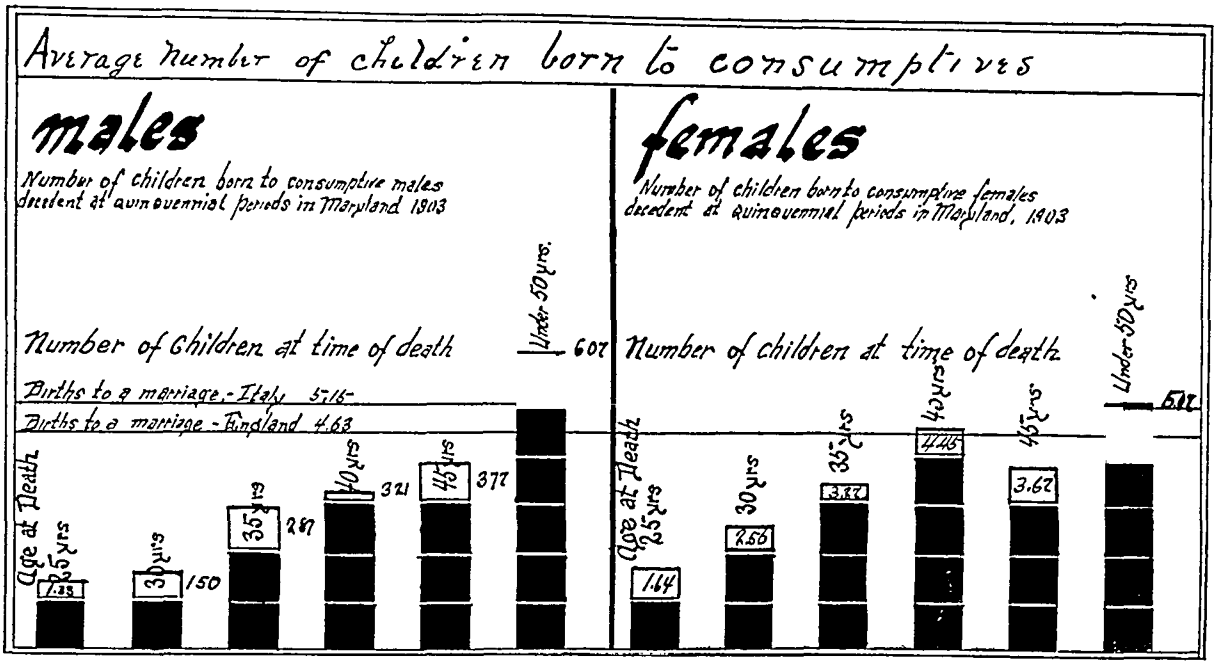

CHART 2.

3. *The period of complete disability* with or without dependency. Whether or not dependency occurs depends on many features, such as the duration of the disease and the earning capacity of the remainder of the family unit.

From the state's point of view the usefulness of any of its citizens ceases with the cessation of his economic activities. Not only is the state a loser in this way, but an immediate item of expense may arise in the ultimate dependency of a large proportion of wage earners. It is in this latter class that the heaviest loss to the state will occur, as these individuals not only cease to be producers, but the community must provide for their care and support. In the State of Maryland at the present time there are 10,000 consumptives, 8,000 of whom have ceased to be economic factors in their communities. The state may have to provide for the support ultimately of these 8,000 people who are not economic factors and the majority of whom have no likelihood of ever becoming such, a number larger and more expensive in proportion than the German army and who, far from procuring and guaranteeing the safety and integrity of the state, are a source of danger or an actual menace to those about them.

Among diseases tuberculosis ranks first, with the single exception of insanity, in the extent and amount of dependency it produces. Of 177 wage-earning males tabulated in this paper among whom careful inquiry was made concerning the original and ultimate economic condition, 72, or 40 per cent., became dependent on charitable aid during the course of their disease; 26, or 14 per cent., died in charitable institutions, and we have good reason to suppose that the majority of others received at some time charitable aid.

The influence of tuberculosis on the ultimate history of the family in which it appears causes infinitely more damage than that suffered by the state, as its effects rest on only a small number of persons. The ultimate destruction or disintegration of the family unit is only too frequently the result of tuberculosis when it appears in the wage-earning member of the family.

The causes producing the final result are very much more far-reaching than the mere deprivation of the income of the wage-earning member. Histories of such families show that the result of such long-continued illness is not only a complete exhaustion to the family treasury, but an ultimate destruction of a considerable portion of the family from the disease. There seems to be no other disease of such malign influence in its tendency to bring the family unit down to the lower levels of social and material welfare.

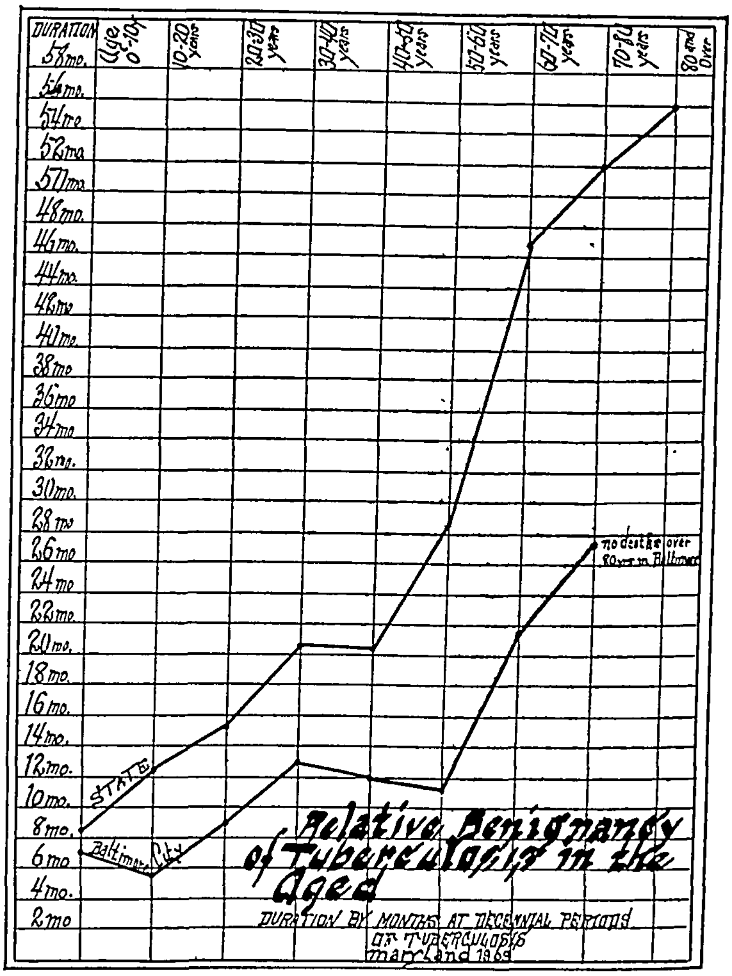

CHART 3.

We have no method of computing in figures the effect on the family produced by the death of its non-productive members, more especially the mother, but the effect on the family will ultimately be as great or greater than in the death of the wage-earning parent, though the results may appear in other ways.

It is evident that many factors will enter into the duration of the three periods of the consumptive's economic life already specified and the economic loss connected therewith. Many of these can neither be ascertained nor described, but the influence of sex occupies a particular field in which the conditions are interesting and to a limited extent easily determined; but before the consideration of these varying features it becomes necessary to determine the normal working period of the wage earner, its normal duration, and the life capital dependent thereon.

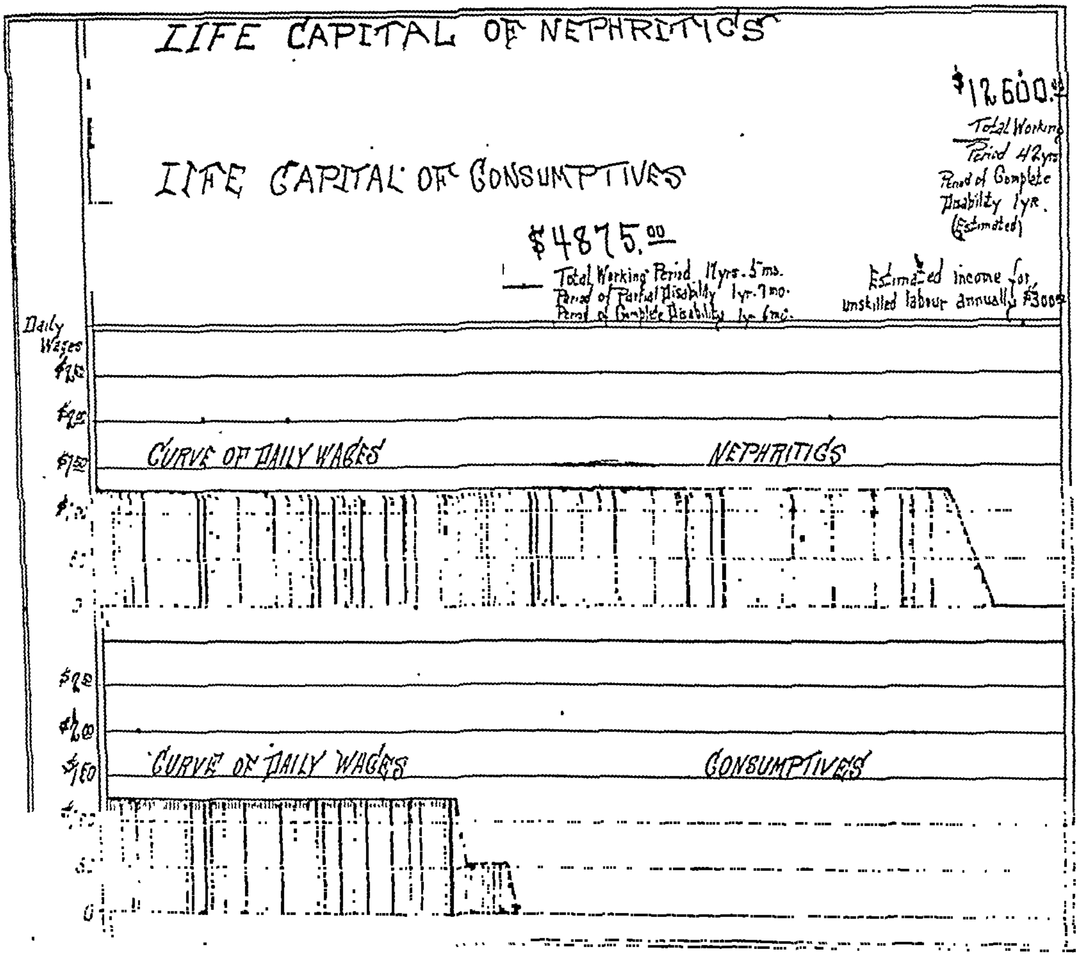

Chart 4.

The consideration of highest importance is the male wage earner, as the presence of the female engaged in a gainful occupation can not be considered a normal condition from a social point of view, and there are other considerations indicating that this condition is only a temporary and irregular expedient. The most important social duty of the female is the increase and the conservation of the human living capital of the state. This duty is fortunately not impaired by the conditions arising from tubercular diseases.

The study of the accompanying chart makes it plainly evident that in Maryland at least the deficiency in the birth rate of consumptive females is the result of death and not of impaired procreative power, though I am aware that the contrary view is usually held. The chart indicates that both consumptive males and females surviving to the age of 45 years and over, show a number of births in excess of the average fecundity of Italians and English, the former of whom are especially prolific.

The loss incurred by any particular case of tuberculosis must fall in one of two divisions. 1. Actual loss occurring during the course of the disease in the individual and extending up to the time of his death. 2. Potential loss beginning at the death of the individual and extending for an indefinite period; best estimated from the mean duration of life or expectation of life (provided the tuberculous infection does not intervene), at the age at which death occurs.

The question of the mean duration of life will serve to illustrate the fallacy of calculations applied to the tuberculous based on the whole healthy population or any part thereof. It is not my purpose to enter into any of the other elements of fallacies which may arise in dealing with the very complex economic problems connected with this subject.

It may be shown by examining the chart that the mean duration of life of the consumptive at the age of the onset of his disease is not only not proportionate to the expectation of life of healthy persons as the specified age period, but is, in fact, in an inverse proportion thereto. From the tendency of tuberculosis to take a relatively benign course in those advanced in years the general economic law follows: *The actual economic loss of any given case of consumption is in direct pro-*

*portion to the age of the consumptive, and the potential loss is in inverse proportion to the age,* which is corollary to the more general statement that the longer the life of the consumptive the greater the actual loss and the less the potential loss produced by his disease, after the period of total disability is established, and conversely.

The consideration of first importance in determining the economic potentiality of an individual is the estimation of the life capital accumulated by him as the result of his labors during his life. For this comparison there has been selected on the chart the life capital of the unskilled laborer, as a class furnishing the largest number of deaths from consumption. The normal working period has been estimated, both for male and female wage-earners, from the eighteenth to the sixtieth year, after which the degenerations incident to age are considered to terminate the economic usefulness of the individual. In the chart the average life capital accumulated by the consumptive day laborer in Maryland is compared with that accumulated by those dying of chronic diseases of the kidneys, which are among the earliest and most frequent of the degenerative diseases appearing with advancing years. The long black column indicates the life capital accumulated by the average individual dead of chronic diseases of the kidneys, while the smaller column indicates the average life capital accumulated by the consumptive dying in the same year. Each seven-twentieths of an inch in the length of the column indicates one year's work with an accumulation of $300 capital. The nephritic will have worked forty-two years and accumulated the life capital of $12,600, while the *consumptive will have worked* fifteen years and six months and have accumulated the life capital by that time and during the succeeding year and seven months of his disease, during which he is able to do light work, of $4,925. Below, the curves of wages are indicated, usually terminating abruptly with the onset of the degenerative diseases, but showing a marked preliminary decline to a lower standard in the case of the consumptive; the usual course of the degenerative disease being progressive, and without marked remission, while the ultimate *complete disablement of the consumptive* is usually preceded by an irregular period of partial earning capacity. This period is greater in females and in those living in the country.

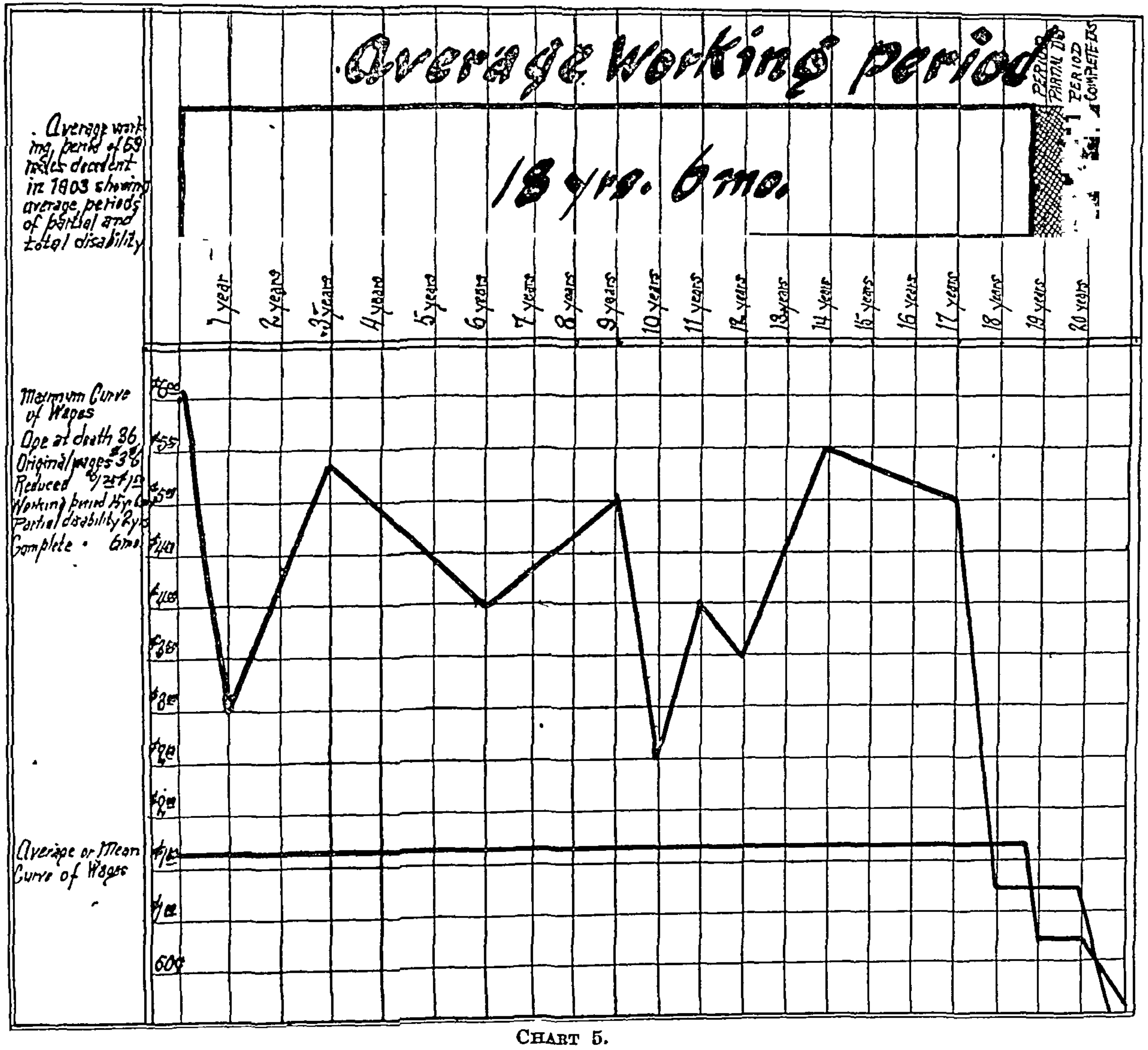

CHART 5.

Another factor influencing this period and consequently the duration of the disease is the annual expenditure which the tuberculous individual is able to make for the betterment of his condition.

Reincke's study shows a distinct advantage for the well to do, and the experience of the physician in private practice tends to show a more prolonged duration in this class than among manual laborers with uncertain incomes.

The factor of age should be eliminated from all calculations of *this character, as in all occupations* there is an increased income with the advance of age, and deductions made without reference to this factor may erroneously ascribe a gain to increased income *really* due to advancing years.

The statistics undoubtedly indicate a considerable disadvantage of those capable of only a small expenditure, such as less than $250 annually. The ability to expend over $3,000 annually seems to possess a very questionable advantage. The items comprising the important factor of personal expenditure or loss incident to the disease include mainly the following:

The period of partial disability.
The period of complete disability.
Money loss in each period.
Expenditures falling on the patient.
Expenditures falling on the family.
Cost of maintenance.
Expenditures incident to death.

It is evident that no estimate can be complete in any given case until the disease has run its course and terminated either by death or in recovery. For statistical purposes and for the proper consideration of the course of the disease, the wage-earners tabulated and charted in these series have been divided according to sex. A further distinction has been made between cases in which there was partial disability and cases in which disability when it occurred was total from the onset. Further distinction may be made of fatal cases in which disability was never complete, the disease terminating abruptly by some of the accidents not infrequent in its course, such as edema glottidis or hemoptysis. No cases resulting in recovery were tabulated among this series of charts, as the class of persons among whom careful economic study was made did not furnish a sufficient number of recoveries to lend themselves readily to tabulation.

Theoretically, the periods of economic disability may appear at any part of the band which represents the whole working period. Though occurring usually at the further end they may occur in the center or appear twice or more in rotation.

The duration of the disease before economic injury becomes manifest is naturally a variable factor. The variation in the periods of disability is governed more by the economic than the clinical course of the disease, the pressure of necessity being potent in many instances to hold in their daily routine many cases well advanced in the disease.

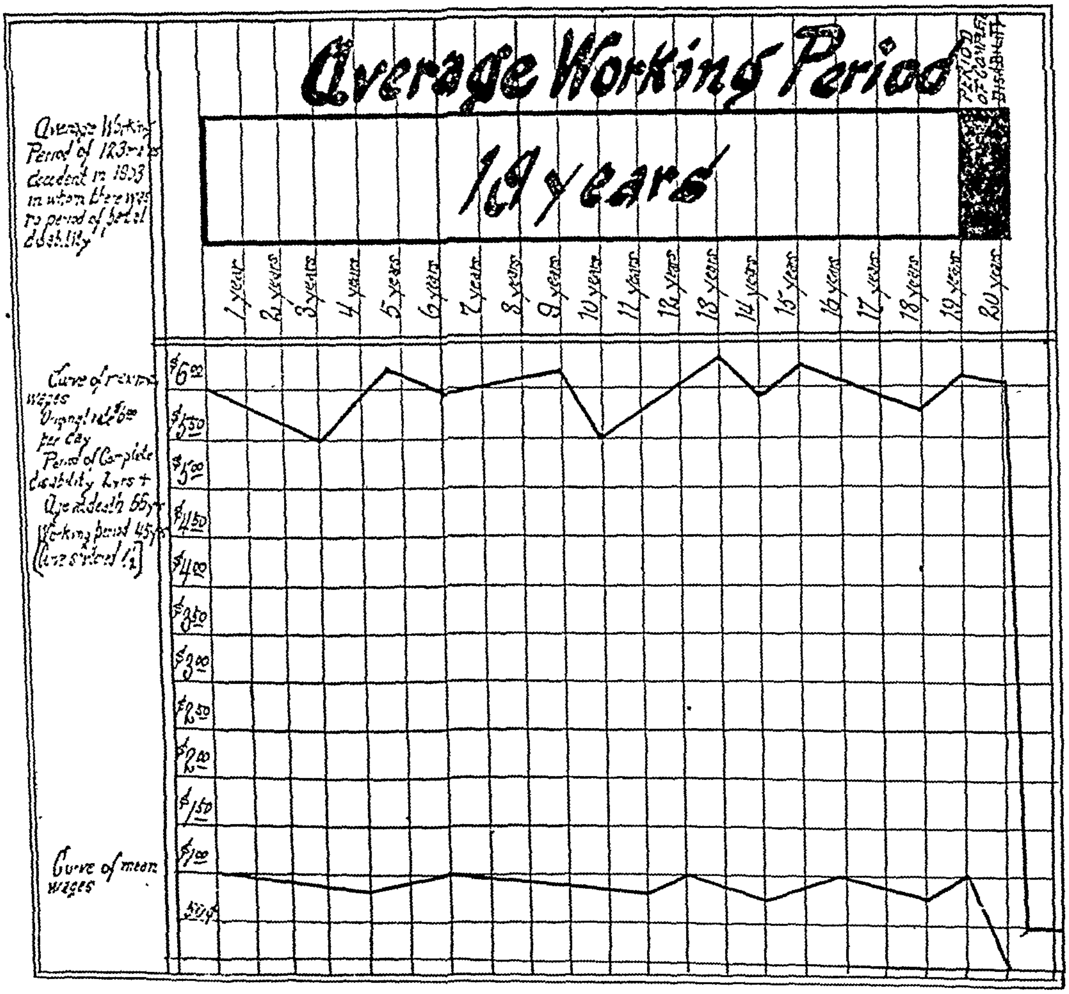

CHART 6.

Of the 71 wage-earning males charted in the series (5, 6, 7 and 8), one was tuberculous for nine years and eight months before economic impairment became manifest (maximum among these cases), one was tubercular nine years before his earning capacity became impaired, one over six years, five over four years. In 23 cases the patients reported themselves free from the disease up to the time their working powers became impaired, the onset of economic disability being apparently synchronous with the onset of the disease. The longest duration reported in the period of impaired earning capacity was eight years. In 2 cases the duration was over five years, in 2 over four years, in 3 over three years, in 10 over two years, in 14 over one year. In 36 cases there was no

TABLE 1.—WAGE EARNING MALES.

| Period total disability. | Irregular work at reduced wages. | Duration of disease to time of death. | Annual income. | Total money loss incurred. | Potential loss. | Age. |
|---|---|---|---|---|---|---|
| 18 months. | Not given. | Over 1 year. | $ 390 | $1113.00 | $14038.00 | 33 |
| 14 months. | 2 years. | About 5 years. | ...... | 1200.00 | 4800.00 | |
| 6 months. | Not given. | ................ | ...... | 204.00 | 5604.00 | |
| 12 months. | 3 years. | | | | | |
| 3 months. | 2 years. | 25 years. | 1000 | 752.00 | 15602.00 | 31 |
| 9 months. | 3 months. | About 18 months. | ...... | 750.00 | 22875.00 | |
| 9 months. | Not stated. | ................ | ...... | 520.00 | 7720.00 | |
| 2 years. | 2 years. | ................ | 468 | 1828.00 | 7220.00 | 61 |
| 6 months. | 1 year. | 8 years. | ...... | 519.55 | | |
| 2 years. | ................ | ................ | ...... | 2100.00 | 23100.00 | |
| 6 years. | Not stated. | 8 years. | 390 | 2695 00 | 7915.00 | 60 |
| 10 months. | None. | 2 years. | ...... | 783.00 | | |
| 1 years. | None. | | | | | |
| 3 months. | None. | 1 year, 7 months. | 520 | 318.50 | 5318 50 | 63 |
| 6 months. | 1 year. | 3 years. | ...... | 400.00 | 3200.00 | |
| 6 months. | None. | About 1 year. | 312 | 285.00 | 3285.00 | 63 |
| 6 months. | None. | 1 year. | 168 | 608.00 | 18983.00 | 25 |
| 10 weeks. | About 1 week. | About 7½ mos. | 208 | 124.00 | 8124.00 | |
| 6 months. | None. | 2 years. | 156 | 280.00 | 6280.00 | 22 |
| 3 months. | None. | 2 years. | ...... | 125.00 | 7625.00 | |
| 4 yr., 11 mos. | Not stated. | 5 years. | 468 | 3307.00 | 15007.00 | 39 |
| 1 year. | None. | 1 year. | 546 | 725.00 | 19100.00 | 26 |
| 2 months. | 5 months. | | | | | |
| 1 year. | None. | About 1 year. | ...... | 393.00 | 5343.00 | |
| 3 months. | None. | | | | | |
| 1 year. | 8 years. | About 8 years. | ...... | 1500.00 | 19500.00 | |
| 1 month. | 7 months. | 9 years. | 2496 | 1748.50 | 76148.50 | 34 |
| 2 months. | 5 months. | About 10 months. | 150 | 238.00 | 8158.00 | 30 |
| 6 months. | None. | 6 months. | 390 | 175 00 | 10315.00 | 40 |
| 1 year. | 2 months. | ................ | ...... | 810.00 | 32040.00 | |
| 13 months. | Not stated. | 5 years. | ...... | 832 60 | | |
| 3 months. | 1 year. | 1 year. | 312 | 411.00 | 10361.00 | 32 |
| 2 years. | None | 2 years. | 312 | 1430.00 | 13430.00 | 18 |
| 7 months. | None. | About 6 months. | 514 | 339.35 | 10239.35 | 44 |
| 6 months. | 10 months. | 1 year, 3 months. | 468 | 500.00 | 14450.00 | 30 |
| 3 years. | None. | 2 years. | 1250 | 4925.00 | 46925.00 | 24 |
| 3 years. | None. | 3 years 2 months. | 624 | 2144.00 | 8144.00 | 62 |
| 6 weeks. | 6 months. | 1 year. | 702 | 500.00 | 20725.00 | 35 |
| 7 months. | 4 months. | | | | | |
| 9 months. | 2 years. | 3 years. | 468 | 842.00 | 11642.00 | 40 |
| 2½ months. | 1½ months. | 4 months. | 218 | 159.00 | 8559.00 | 21 |
| ¾ month. | None. | 2 months. | 208 | 280.00 | 6280.00 | 19 |
| 7 months. | 2 months. | 7 months. | 468 | 848.00 | 12098.00 | 34 |
| 4 weeks. | None. | 1 year. | 260 | 288.00 | 7163.00 | 40 |
| 5 months. | 2 months. | 7 months. | 624 | 694.00 | 20494.00 | 29 |
| 1 year. | 2 months. | | | | | |
| 4 months. | 4 months. | 1 year 1 month. | 390 | 206.00 | 7706.00 | 50 |
| None. | None. | 3 years. | ...... | ........ | 24750.00 | |
| None. | None. | 4 months. | ...... | 250.00 | | |
| 20 months. | Not stated. | 20 months. | 468 | 1353.70 | 13053.70 | 40 |
| 10 months. | None. | 3 years. | 1300 | 870.00 | 16770.00 | 59 |
| 1 year. | None. | 5 months. | 400 | 758.00 | 11278.00 | 41 |
| 9 months. | None. | 12 months. | 450 | 670.00 | 13725.00 | 33 |
| 4 months. | 2 months. | 6 months. | 370 | ........ | 8510.00 | 33 |
| 6 months. | 3 months. | 1 year. | 750 | ........ | 18250.00 | 44 |
| 3 months. | None. | 6 months. | 450 | 142.00 | 11977.00 | 40 |
| 3 months. | 3 months. | 8 months. | ...... | ........ | ........ | 55 |
| 6 weeks. | None. | 18 months. | ...... | ........ | ........ | 54 |
| 8 months. | None. | 3 years. | 1000* | ........ | 30000.00 | 74 |
| 3 months. | 2 months. | 2 years. | 300 | ........ | 10800.00 | 23 |
| 3 years. | 2 years. | About 5 years. | 225 | 1415.00 | 10527.50 | 20 |
| 3 months. | None. | 1 year. | 225 | 139.00 | 7609.00 | 30 |
| 7 months. | 5 months. | 8 years. | 750 | 751.00 | 15601.00 | 51 |
| 9 months. | 1 month. | 10 years. | 300 | 735.00 | 3215.00 | 71 |
| 6 months. | Not stated. | About 1 year. | 375 | ........ | 13875.00 | 26 |
| 3½ months. | None. | 2 to 4 months. | 275 | ........ | 7700.00 | 37 |
| 4 months. | 2 years. | ................ | ...... | ........ | ........ | 50 |
| 10 months. | 6 months. | 1 year. | ...... | ........ | ........ | 56 |
| 10 months. | 7 months. | 10 years. | ...... | ........ | ........ | 35 |
| 2½ months. | None. | ................ | 600* | ........ | 24300.00 | 18 |
| 3 months. | 3 months. | ................ | 500 | | | |
| 3 months. | None. | 1 year. | ...... | ........ | ........ | 37 |
| 4 months. | 4 months. | ................ | 225 | 222.00 | 6139.50 | 38 |
| 4 months. | 15 months. | 2 years. | 450 | 500.00* | 18725.00 | 20 |
| 3 weeks. | 4 weeks. | 7 weeks. | ...... | | | |
| 3 months. | None. | 4 years. | 300 | 142.00 | 7042.00 | 44 |
| 1 year. | 1 year. | 2 years. | 500* | 1425.00 | 19425.00 | 23 |
| 1 year. | Not stated. | About 2 years. | ...... | 465.00 | ........ | 27 |
| 2 months. | 4 months. | ................ | 600 | 228.00 | 21228.00 | 23 |
| 1 week. | None. | 1 week. | 375* | 680.00 | 14555.00 | 25 |
| 2½ years. | None. | 3 years. | 450 | ........ | 9900.00 | 43 |
| 2 months. | None. | 9 months. | 1200 | ........ | 27600.00 | 45 |
| 1 year. | Not stated. | 18 months. | 360 | 535.00 | 13855.00 | 24 |
| 8 months. | None. | 2 years. | 750 | 810.00 | 25710.00 | 32 |
| 2 months. | 1 year. | ................ | 300 | 361.00 | 8251.00 | 42 |
| 2½ months. | None. | 4 months. | 600 | 146.00 | 15926.00 | 42 |
| None. | 6 months. | 18 months. | ...... | 885.00 | | 66 |
| 3 years. | None. | 3 years. | 1800 | 8828.00 | 28328.00 | 66 |
| 17 months. | None. | 17 months. | 400 | 828.00 | 14108.00 | 31 |
| 3 years. | Not stated. | 3 years. | 1200 | 3500.00* | 39500.00 | 36 |
| 6 months. | None. | Not stated. | 300 | 451.00 | 7351.00 | 46 |
| 8 months. | None. | 1 year 2 months. | 500 | 400.00 | 13550.00 | 40 |
| 3 weeks. | 11 months. | 1 year. | 300 | 230.00 | 10190.00 | 32 |
| 1 year. | 1 year. | 2 years. | 225 | 555.00 | 8880.00 | 23 |
| 2 months. | 5 years. | ................ | 300 | | | |
| 10 years. | | ................ | 450 | 84.00 | 16734.00 | 26 |
| 1 month. | Not stated. | | ...... | ........ | ........ | 36 |
| 9 months. | None. | 3 years. | 600 | 835.00 | 14665.00 | 44 |
| 3 months. | 6 months. | 1 year. | 500 | 820.00 | 7620.00 | 61 |
| 6 months. | 1 year. | 3 years. | 275 | 704.00 | 3069.00 | 68 |
| 1 year. | 1 year. | 2 years. | 2000 | 1700.00 | | |
| 6 months. | Not stated. | 2 years. | ...... | ........ | | 27 |
| 3 months. | 6 months | 1 year. | 500* | 455.00 | 17055.00 | 31 |
| 5 months. | 10 months. | 15 months. | 572 | 452.00 | 9032.00 | 57 |
| 3 months. | Not stated. | 1 year. | | 572.00 | ........ | 77 |
| 2 years. | About 10 years. | 1 year 7 months. | ...... | | 22200.00 | 24 |
| 4½ months. | None. | 1 year. | 600* | ........ | | |
| 6 months. | 2 months. | 3 years. | $1000 | 748.00 | 27048.00 | 40 |
| 11 months. | Not stated. | 8 months. | 450 | 468.50 | 18693.50 | 20 |
| 5 months. | Not stated. | 8 months. | 725 | 450.00 | 27575.00 | 26 |
| 2 weeks. | 7 months. | 7 years. | 500 | 279.00 | 14779.00 | 37 |
| 3 months. | 4½ years. | 5 years. | 450 | 1262.50 | 10712.50 | 43 |
| 3 years. | 4 months. | 13 years. | 500 | 896.00 | 14016.00 | 42 |
| 6 months. | Not stated. | 4 years. | 260 | 405.50 | 10516.00 | 24 |
| 5½ months. | 4 months. | 9½ months. | 450 | 694.75 | 18919.75 | 21 |
| 6 months. | Not stated. | 1 year. | 486 | 474.40 | 7084.00 | 59 |
| 2 months. | Not stated. | 6 months. | 450 | 214.00 | 16864.00 | 25 |
| 6 months. | Not stated. | 6 months. | 300 | 176.00 | 12326.00 | 19 |
| 7 months. | Not stated. | 2 years. | 780 | 1719.15 | 14979.15 | 56 |
| 9 months. | 9 months. | 1 year, 3 months. | 780 | 873.00 | 32463.00 | 22 |
| 3 months. | 4½ months. | 5 years. | 468 | 1262.50 | ........ | 43 |
| 6 months. | Not stated. | 6 months. | 312 | 176.70 | 12812.70 | 19 |
| 7 months. | Not stated. | 2 years. | 780 | 1709.50 | 14189.50 | 56 |
| 2 months. | Not stated. | 6 months. | 316 | 214.80 | 11906.80 | 25 |
| 6 months. | Not stated. | 1 year. | 421 | 474.40 | 6200.00 | 59 |
| 9 months. | 9 months. | Not stated. | 780 | 873.00 | 32463.00 | 22 |
| 6 months. | 2 months. | 3 years. | 1040 | 748.00 | 28100.00 | 40 |
| 10 mos. 2wks. | Not stated. | 8 months. | 468 | 468.50 | 19422.50 | 20 |
| 5 months. | Not stated. | 8 months. | 754 | 450.00 | 28498.80 | 26 |
| 2 weeks. | 7 months. | 7 years. | 520 | 279.00 | 16035.00 | 37 |
| 1 year 5 mos. | 4 months. | 13 years. | 520 | 896.00 | 14572.00 | 42 |
| 6 months. | Not stated. | 4 years. | 260 | 405.50 | 10935.00 | 24 |
| 5½ months. | 4 months. | 9½ months. | 468 | 624.75 | 19578.75 | 21 |
| 2 months. | Not stated. | 7 years. | 468 | 123.85 | 13227 85 | 33 |
| 2 months. | 6 weeks. | 1. 8 months. | 1300 | 490.90 | 39490.90 | 34 |
| 9 months. | Not stated. | 1. 1 year. | 936 | 720.00 | 16932.00 | 54 |
| 2 months. | Not stated. | 1. 4 months. | 312 | 101.10 | 14541.10 | 17 |
| 2 months. | Not stated. | 1. 2 months. | 260 | 96.50 | 9716.50 | 28 |
| 3½ months. | Not stated. | 1. Not stated. | 468 | 162.00 | 12116.00 | 44 |
| 3 months. | Not stated. | 1. 1½ years. | 360 | 114.00 | 10914.00 | 43 |
| 2 months. | None. | 1. 2 months. | 360 | 48.00 | 9828.00 | 42 |
| 2 yrs., 9 mos. | 3 months. | 1. 8 years. | 600 | 1626.00 | 15426.00 | 44 |
| 2 months. | 2 months. | 1. 10 years. | 1560 | 2034.00 | 26394.00 | 54 |
| None. | None. | 1. 6 months. | 468 | 3.50 | 14043.50 | 36 |
| 6 months. | Not stated. | 1. 1 year. | 468 | 218.50 | 10982.50 | 45 |
| 1 year 2 mos. | Not stated. | 1. 7 years. | 624 | 1225.00 | 9711.40 | 57 |
| 6 weeks. | 2½ years. | 1. 18 months. | 832 | 585.00 | 19721.00 | 43 |
| Not stated. | Not stated. | 1. 10 years. | 156 | ........ | 4002.80 | 43 |
| 2 yrs., 3 mos. | Not stated. | 1. 3 years. | ...... | 553.00 | ........ | 29 |
| 4 months. | Not stated. | 1. 2½ years. | 936 | 521.00 | 27601.00 | 35 |
| None. | None. | 1. 1 to 3 years. | 868 | 5.50 | 26045.50 | 35 |
| 19 days. | Not stated. | 1. 4 years. | ...... | ........ | ........ | 34 |
| 4 years. | About 1 year. | 1. 30 years. | 468 | 2911.00 | 12177.40 | 51 |
| 1 week. | Not stated. | 1. 2 to 3 months. | 468 | ........ | 14040.00 | 43 |
| 4 months. | Not stated. | 1. 5 years. | 676 | 307.00 | 20587.00 | 36 |
| 3 weeks. | 2 months. | 1. 5 months. | 416 | 89.70 | 15481.70 | 27 |
| 4 months. | Not stated. | 1. 4 months. | 468 | 182.00 | 5330.00 | 63 |
| 8 months. | Not stated. | 1. 8 months. | 524 | 528.20 | 25780.00 | 21 |
| 5 months. | 3½ months. | 1. 4 years. | 780 | 2028.50 | 19968.20 | 44 |
| 1 year | Not stated. | 1. 2½ years. | 832 | 1019.00 | 25970.00 | 37 |
| 4 months. | Not stated. | 1. 4 months. | 314 | 122.10 | 8380.30 | 41 |
| 1 month. | 2 months. | 1. 9 months. | 624 | 126.00 | 18846.00 | 34 |
| 1 year. | Not stated. | 1. 13 months. | 780 | 792.00 | 13272.00 | 56 |
| 3 weeks. | Not stated. | 1. 1 year. | 156 | 29.25 | 6347.25 | 20 |
| 3 weeks. | Not stated. | 1. 3 months. | 520 | 67 00 | 19307.00 | 27 |
| 1 week. | 1 month. | 1. | 390 | 22.60 | 11722.59 | 34 |
| 3 months. | 4 days. | 1. 7 months. | 286 | 103.50 | 11688.50 | 22 |
| Not stated. | 4 months. | 1. 4 months. | 390 | 243.00 | 7965.00 | 51 |
| Not stated. | Not stated. | 1. 2 years. | ...... | ........ | ........ | 12 |
| 1 month. | 6 weeks. | 1. 1 year. | 546 | 100.00 | 20411.20 | 34 |
| 2 months. | Not stated. | 1. 2 years. | 858 | 52.00 | 28537.60 | 32 |
| 9 months. | 1 year. | 1. 1 year. | 468 | 566.50 | 21392.50 | 17 |
| 13 weeks. | Not stated. | 1. 6 months. | 624 | 608.00 | 22820.80 | 25 |
| 14 months. | 2 years. | 1. 4 years. | 468 | 1013.00 | 13321.40 | 38 |
| 3 weeks. | Not stated. | 1. 2 years. | 780 | 78.10 | 31668.10 | 22 |
| 6 months. | Not stated. | 1. 6½ months. | 244 | 159.00 | 7479.00 | 33 |
| 10 months. | Not stated. | 1. 10 months. | 468 | 402.00 | 17718.00 | 25 |
| 6 weeks. | 5 months. | 1. 1½ years. | 1170 | 435.00 | 31206.00 | 39 |
| 4 months. | 3 months. | 1. 8 months. | 468 | 263.00 | 19217.00 | 20 |
| 1 week. | 6 weeks. | 1. 6 months. | 468 | 77.50 | 15537.60 | 30 |
| 3 months. | Not stated. | 1. 26 years. | 676 | 856.00 | 23299.20 | 29 |
| 3 weeks. | 1 week. | 1. 1 month. | 780 | 62.00 | 25958.00 | 31 |
| 8 months. | Not stated. | 1. 8 months. | 660 | 832.00 | 18190.00 | 42 |
| 7 weeks. | Not stated. | 1. 5 months. | 416 | 77.00 | 16925.00 | 19 |
| 5 months. | Not stated. | 1. 6 months. | 364 | 163.00 | 14905.00 | 20 |
| 7 months. | Not stated. | 1. 20 years. | 764 | 439.00 | 31371.00 | 20 |
| 1 year. | Not stated. | 1. 1 year, 5 mos. | 624 | 661.00 | 25933.00 | 20 |
| 1 week. | 3 months. | 1. 3 months. | 520 | 52.20 | 13728.20 | 38 |
| Not stated. | Not stated. | 1. 2 years. | ...... | 10.00 | ........ | 64 |
| 3 months. | Not stated. | 1. 8 months. | 338 | 94.50 | | |
| 5 months. | Not stated. | 1. 2 years. | 390 | 201.00 | 14631.00 | 21 |
| 7 months. | Not stated. | 1. 7 months. | 520 | 566.00 | 14242.00 | 25 |
| 5 months. | 2 weeks. | 1. 5 months. | 234 | 177.00 | 10707.00 | 17 |
| 2 weeks. | Not stated. | 1. 1 year. | 520 | 26.00 | 7098.00 | 62 |
| Not stated. | Not stated. | 1. 5 months. | ...... | 8.00 | ........ | 22 |
| 2½ years. | Not stated. | 1. 2½ years. | 208 | 1069.00 | 9493.00 | 22 |
| 10 months. | Not stated. | 1. 10 months. | 780 | 636.00 | 32226.00 | 21 |
| 5 weeks. | Not stated. | 1. 8 months. | 720 | 77.00 | 26710.00 | 24 |
| 1 month. | Not stated. | 1. 2 years. | 520 | 2.50 | | |
| 2 years. | Not stated. | 1. 2 years. | 260 | 489.10 | 10109.10 | 25 |
| 3 years. | Not stated. | 1. 5 years. | 676 | 5663.00 | 28106 20 | 32 |
| 5 months. | Not stated. | 1. 2½ months. | 420 | 210.50 | 18900.50 | 19 |
| 8 months. | Not stated. | 1. 9 months. | 364 | 359.00 | 13899.80 | 29 |
| 8 months. | Not stated. | 1. 8 months. | 520 | 411.00 | 16161.00 | 39 |
| 2 weeks. | Not stated. | 1. 3 months. | 1144 | 85.00 | 42641.80 | 25 |
| 10 months. | None. | 1. 2 to 3 years. | 360 | 495.00 | 7623.00 | 51 |
| 5 months. | None. | 1. Over 2 years. | 360 | 122.50 | 13514.50 | 24 |
| 18 months. | 5 months. | 1. 3 years. | 306 | 400.00 | 8447.00 | 42 |
| 2 yrs., 9 mos. | 3 months. | 7 years. | 720 | 1626.00 | ........ | 44 |
| 6 weeks. | None | 6 weeks. | 468 | 124.00 | ........ | 30 |
| 8 months. | 1 year. | 1 year, 8 months. | 312 | 350.00 | ........ | 40 |
| 3 months. | 1 year. | 6 years. | ...... | 325.00 | | |
| 3 days. | None. | 5 years. | ...... | 340.00 | | |
| 4 months. | None. | About 5 months. | ...... | 135.00 | | |

TABLE 1.—WAGE EARNING MALES—Continued.

| Period of total disability. | Irregular work at reduced wages. | Duration of disease to time of death. | Annual income. | Total money loss incurred. | Potential loss. | Age. |
|---|---|---|---|---|---|---|
|  |  |  |  |  | $ |  |
| 5 months. | Not stated. | 1 year. | 416 | $ 668.00 | ......... | 20 |
| 6 months. | 3½ years. | 8 years. | 936 | 3530.75 | ......... | 66 |
| 10 months. | None. | 10 months. |  | 47.85 |  |  |
| 6 months. | Not stated. | 6 months. |  | 300 00 |  |  |
| 4 months. | None. | 1 year. |  | 200.00 |  |  |
| 2 months. | None. | 3 years. | 220 | 494.00 | ......... | 39 |
| 3 months. | Not stated. | 9 months. |  | 236.20 |  |  |
| 1 year. | 4 months. | 4 years. | 720 | 1895.00 | ......... | 26 |
| 1 year. | Not stated. | 14 months. | 234 | 978.00 | ......... | 29 |
| 7 months. | 1 year. | 1 year, 7 months. | 780 | 616.00 | ......... | 66 |
| 1 year. | Not stated. | About 5 years. | 300 | 500.00 | ......... | 36 |
| 5¼ months. | 4 months. | 9 months. | 858 | 751.00 | ......... | 30 |
| 10 months. | Not stated. | 5 years. |  | 689.15 | 16538.00 |  |
| 6 months. | 4 years. | 10 years. | 312 | 4788 00 | ......... | 44 |
| 6 months. | 2 years. | 2 to 3 years. | 1300 | 1640.00 | 40540.00 | 36 |
| 3 months. | 2 months. | 1 year. | 720 | 206.00 | 21806.00 | 33 |
| 6 months. | None. |  |  |  |  |  |
| 1 month. | Not stated. |  |  |  |  |  |
| 3 years. | 2 years. | 3 years. | 312 | 1200.00 | 3900.00 | 67 |
| 1 year. | Not stated. | About 7 years. | 312 | 853.00 | 4603.00 | 58 |
| 6 mos., 1 wk. | 10 months. | ................... | 312 | 549.20 | 11049 20 | 28 |
| 1 year. | Not stated. | 13 months. | 624 | 793.00 | 16200.00 | 38 |
| 2 years. | Not stated. | 2 years. | 624 | 1540.00 | 7540 00 | 62 |
| 6 months. | Not stated. | 6 months. | 312 | 227.00 | 10729.00 | 27 |
| 1 year. | 6 months. | 18 months. | ...... | 614.25 | 1440.00 |  |
| 2 months. | None. |  |  |  |  |  |
| 1 year. | None. | ................... | 624 | 528.20 | 20028.00 | 21 |
| 1 month. | 6 months. | 1 year. |  | 253.00 | 12852.00 |  |
| 6 months. | 18 months. | 3 years. | 1300 | 2505.00 | 29505.00 | 42 |
| 2 months. | 2 years. | 4 years. | 468 | 2325.00 | 24825.00 | 34 |
| 5 weeks. | None. | 5 weeks. | 390 | 202.50 | ......... | 37 |
| 3 months. | 2 months. | 6 months. | 156 | 163.00 | 4063.00 | 40 |
| 1 year. | Not stated. | 17 months. | 156 | 524.00 | 10424.00 | 37 |
| 3 weeks. | Not stated. | About 3 years. | 260 | 29.00 | 3779.00 | 53 |
| 4 months. | None. | 18 months. | 343 | 871.00 | 27871.00 | 35 |
| 1 year. | None. | 2 years. | 468 | 555.00 | 14055.00 | 34 |
| 1 year. | Not stated. | 1 year. | 720 | 2100.00 | 22500.00 | 29 |
| 10 months. | None. | 10 months. | 432 | 1130.00 | 19994 00 | 23 |
| 1 year. | None. | 1 year. | 480 | 8331.00 | ......... | 53 |
| 2 years. | 5 years. | 7 years. | ...... | 1730.50 | 11530.00 |  |

Total number of males, 258.

period of partial disability, disability when it occurred being total from the onset.

The longest period of complete disability reported was ten years; in one case each the period was six, five and four years; in six cases over three years; in six cases over two years; in eighteen cases over one year. The maximum yearly income interrupted by total disability was $1,300. The greatest actual loss incurred incident to the disease was in a man of 66, who was totally disabled for three years, and suffered during that time a total actual loss of $8,828 and a potential loss of $28,628. The remaining economic loss appears in the succeeding tables. (Tables 1 and 2.)

A separate table was given for females, which may be of interest for comparison. Among wage-earning females the maximum annual income was $1,200, the longest period of partial disability was one year, the longest period of complete disability one year. The greatest actual loss incurred was $2,335, and the greatest potential loss was $36,000 in a female aged 36 years, whose annual income was $1,200, and who was totally disabled for two years. The next greatest potential loss among female wage-earners was $28,360 in a female dead at the age of 37 years, whose annual income was $800, and who was totally disabled for one year. (Table 2.)

All of the figures given on these tables and charts must be understood to represent a minimum with variable limits. It is naturally impossible to determine all the elements entering into a calculation of this character, though I believe that the total approaches accuracy in the majority of instances. It must be further understood that even when the estimate is complete a certain margin of profit must be allowed between the income received by the individual and its value to the community or state.

TABLE 2.—WAGE EARNING FEMALES.

| Period of total disability. | Irregular work at reduced wages. | Duration of disease to time of death. | Annual income. | Total money loss incurred. | Potential loss. | Age. |
|---|---|---|---|---|---|---|
| 3 weeks. | Not stated. | 1 year. | $ 250 | $ 178.70 | $ 8478.70 | 30 |
| 4 months. | None. | 4 months. | 416 | 592.00 | 17440.00 | 21 |
| 3 years. | 3 months. | 3 years. | 300 | 2335.00 | 10225.00 | 39 |
| 9 months. | None. |  |  |  |  |  |
| 2 months. | None. | ................... | 250 | 100.00 | 7340.000 | 33 |
| 4 months. | None. | 7 months. | 600 | 434.00 | 16214.00 | 42 |
| 7 months. | None. | ................... | 450 | 1489.05 | 12739.05 | 38 |
| 3 months. | 6 months. | 2 years. | 350 | ......... | 12600.00 | 24 |
| 7 months. | None. | ................... | 75 | ......... | 3300.00 | 13 |
| 7 months. | None. | 7 months. | 150 | 334.00 |  |  |
| 3 months. | None. | 1 year. | 225 | 102.00 | 8659.00 | 25 |
| 5 months. | None. | 10 months. | 156 | ......... | 6318.00 | 18 |
| 1 week. | None. | Several years. |  |  |  |  |
| 2 months. | None. | 3 months. |  |  |  |  |
| 2 years. | None. | 3 years. | 208 | 733.00 | 8016.00 | 27 |
| 3 months. | 3 months. | Not stated. |  |  |  |  |
| 3 months. | Not stated. | 4 months. | 65 | 71.00 | 2931.00 | 13 |
| 6 months. | Not stated. | 1 year. | 260 | ......... | 9360.00 | 23 |
| 5 months. | Not stated. | Not stated. | 300 | 785.00 | 10745.00 | 31 |
| 2 years. | Not stated. | 18 months. | 225 | 382.00 | 4807.00 | 52 |
| 1 year. | 6 months. | 1 year. | 105 | 311.00 | 2390.00 | 48 |
| 6 months. | None. | 8 months. |  |  |  |  |
| 13 months. | Not stated. | 1½ years. | 225 | 540.00 | 7402.50 | 36 |
| None. | None. | 4 months. | 300 |  |  |  |
| 12 months. | None. | 18 months. | 120 | 120.00 | 4980.00 | 19 |
| 5 months. | None. | 13 months. | 225 | 230.00 | 7700.00 | 30 |
| 7 months. | None. | 14 months. | 150 | ......... | 6075.00 | 21 |
| 3 months. | None. | About 1 year. |  |  |  |  |
| 6 months. | 2 months. | 2 years. | 225 | 410.00 |  |  |
| 2 months. | None. | ................... | 240 | 93.00 | '8378.00 | 32 |
| 6 months. | None. | 2 years. | 275 | 283.25 | 11420.75 | 22 |
| 6 months. | 1 year. | 8 to 10 years. | 200 | 519.15 | 5119.15 | 44 |
| 6 months. | None. | 6 months. | 260 | 334.00 | 10864.00 | 19 |
| 4 months. | 3 months. | 7 months. | 225 | 272.00 | 7742.00 | 32 |
| 4 months. | None. | ................... | 264 | 141.00 | 9381.00 | 23 |
| 1 year. | None. | 2 years. | 900 | 1360.00 | 28360.00 | 37 |
| 3 months. | Not stated. | 1 year. |  |  |  |  |
| 6 months. | None. | 1 year. | 300. | 455.00 | 11555.00 | 26 |
| 8 months. | Not stated. | Not stated. | 255 | ......... | 11475.00 | 18 |
| 5 months. | 1 month. | 6 months. | ...... | ......... |  | 27 |
| 2 years. | 1 year. | 3 years. | 1200 | ......... | 36000.00 | 36 |
| 3 weeks. | 6 months. | 1. 6 months. | 130 | 147.20 | 14463.20 | 32 |
| 7 months. | Not stated. | 1. 8 months. | 208 | 141.00 | 6443.40 | 36 |
| 9 months. | 6 weeks. | 1. 3½ years. | 104 | 228.60 | 2703.80 | 48 |
| 3½ months. | 3 weeks. | 1. 8 months. | 361 | 314.00 | 12398 80 | 32 |
| 7 months. | Not stated. | 1. 7 months. | 364 | 119.00 | 6161.40 | 54 |
| 4½ years. | 1 year. | 1. 5 years. | 208 | 389.90 | 3132.30 | 46 |
| 1 week. | Not stated. | 1. 5 years. | '78 | 25.50 | 3574.50 | 19 |
| 3 months. | Not stated. | 1. 10 months. | 130 | 70.00 | 5985.00 | 25 |
| 2 months. | Not stated. | 1. 7 months. | 247 | 119.00 | 9307.40 | 26 |
| 2 months. | 2 months. | 1. 5 months. | 377 | 100.50 |  |  |
| 9 months. | Not stated. | 1. 1 year. | 78 | 180.90 | 4252.50 | 14 |
| 3 months. | 9 months. | 1. 9 months. | 360 | 235.00 | 19027.00 | 16 |
| 8 months. | Not stated. | 1. 8 months. | 286 | 224.00 | 10853.00 | 28 |
| 5 years. | Not stated. | 1. 30 years. | 156 | 891.00 | 3979 80 | 52 |
| 3 mos., 1 wk. | Not stated. | 1. 3 months. | 182 | 90.00 | 6860.40 | 29 |
| 2 months, | Not stated. | 1. 3 months. | 182 | 34.00 | 8315.00 | 19 |
| 5 months. | Not stated. | 1. 5 months. | 130 | 60.00 | 3869.00 | 34 |
| 10 months. | Not stated. | 1. 1 year. | 104 | 83.75 | 3952.55 | 24 |
| 2 months. | 2 years. | 1. 5 years. | 204 | 437.00 | 4476.20 | 53 |
| 4 months. | Not stated. | 4 months. | 416 | 592.00 | 17440.00 | 21 |
| 3 weeks. | Not stated. | 1 year. | 108 | 178.75 | 3764.35 | 30 |
| 6 months. | Not stated. | 1. 9 months. | 48 | 95.00 | 2255.00 | 13 |
| 2 months. | Not stated. | 1. 2 years. | 208 | 83.00 |  |  |
| 2 years. | Not stated. | 1. 3 years. | 208 | 736.00 | 8432.00 | 27 |
| 3 weeks. | None. | 1. 5 years. | ...... | ......... | ......... | 25 |
| 1 month. | Not stated. | 1. 1 month. | ...... | ......... | ......... | 22 |
| 2 weeks. | 5 weeks. | 1. 2 years. | 236 | 27.00 | 8759.00 | 23 |
| 10 months. | Not stated. | 1. 6 to 12 mos. | ...... | ......... |  | 24 |
| 4 months. | 1 year. | 1. 1 yr. 11 mos. | 288 | 454.42 | 4371.22 | 59 |

Total number of females, 70.

The average working period, the periods of disability, the curve of average wages are shown for consumptive wage-earners in the following series of six charts:

The first of these series (Chart 5) represents the average working period of 69 males decedent in 1903, showing the two terminal periods of partial and complete disability. Below are shown the average curve of wages of these periods and the maximum wages received by any one of the 69 persons. The band at the top represents the average working period of these 69 males. The first zone represents the period of partial disability and the second zone the period of complete disability. The vertical lines represent yearly periods.

By a study of the chart will be seen the average working period for these 69 males was eighteen years and six months. The period of partial disability then appeared, averaging eleven months, one week, followed by a period of complete disability of eleven months and three weeks, lasting up to the time of death.

The lower curve represents the average daily wage corresponding to these periods, which in this special series was $1.65 during the period of their earning capacity, and the average of $0.75 during the period of partial disability, and remaining at 0 from then on to the time of death. The upper curve indicates the maximum daily wages of this series. This man was aged 36 years at death, had a working period of fifteen years six months up to the time his earning capacity was, first impaired by his disease; his daily wages were $3 to $6 during this period, declining during the period of partial disability to from $1.25 to $1.50 per day. This period of partial disability lasted two years, and was succeeded by a period of complete disability from two to six months, lasting up to the time of death.

Chart 6 gives the average working period of 123 males decedent in 1903, in whom there was no period of partial disability (disability when it appeared being complete from the onset). The average working period appearing on this chart is nineteen years, which is succeeded by an average period of complete disability of one year two months.

As naturally appears in the chart, this series represents a class much lower in an economic scale, as the majority of persons making up this series worked continuously, pursuing their regular or irregular avocations until completely disabled and showing no period of partial disability.

The average daily wages during the nineteen-year working period ranges somewhat below $1. The majority of persons in this series began work at a much earlier age than in the preceding series, and hence their average working period was comparatively less than really appears on the chart. The maximum daily wage among these individuals was $6 per day, the working period of forty-five years, the period of complete disability three years and the age at death 66 years. The length of this curve has been shortened by a little over one-half in order to allow it to appear on the chart.

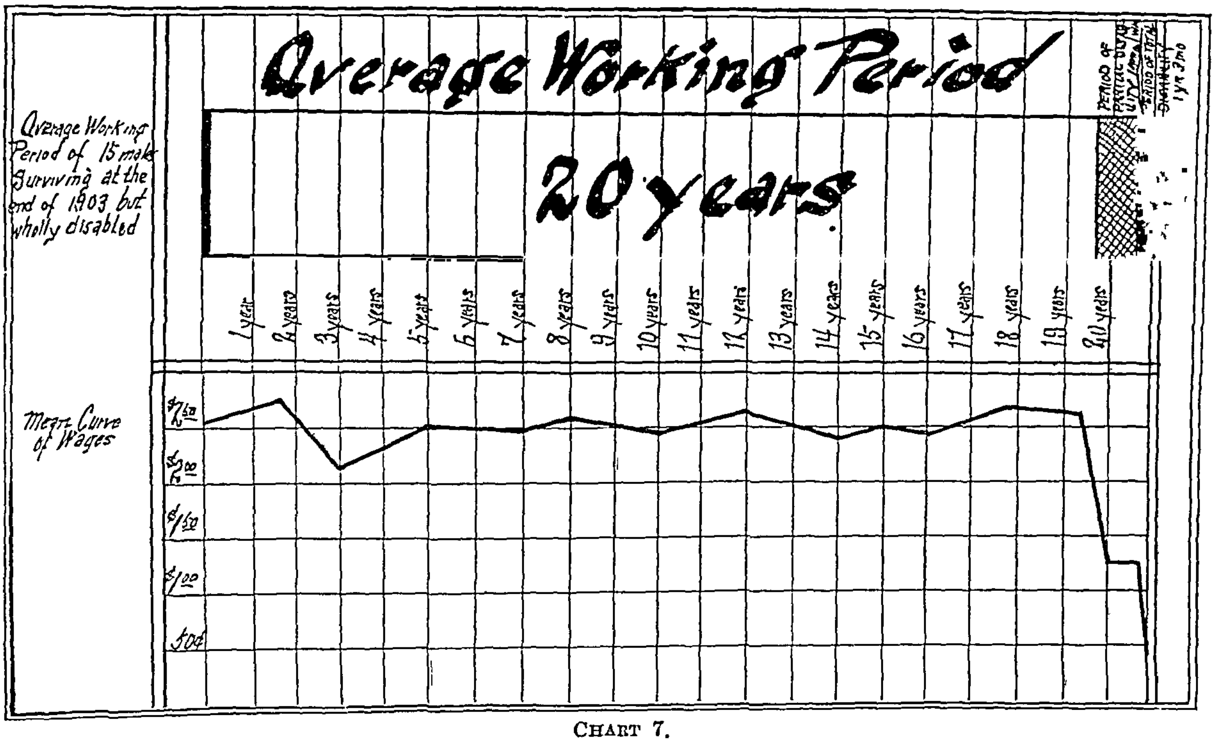

CHART 7.

Chart 7 shows the average working period of fifteen males surviving at the end of 1903 but wholly disabled. The curve of wages for the same period is shown. The working period of the individuals of this series averages twenty years, followed by a period of partial disability of ten months and one week, and a period of complete disability which had lasted on an average of one year, eight months and two weeks up to the end of 1903.

The average original wages of persons of this series was $2.50, the average reduced wages during the period of partial disability $0.75.

The next three charts of this series deal with the average working period and average wages of consumptive wage-earning females.

Chart 8 indicates the working period of eight wage-earning females decedent in 1903, showing two terminal periods—one of partial and one of complete disability. The curve of average wages for the same period is shown below. The average wages range under $1 per day for this series, declining to a little over $0.50 per day during the period of partial disability. The average working period of this series is twelve years four weeks, the period of partial disability eleven months one week, and the period of complete disability four months one week.

The comparison of these three charts with the three preceding charts shows a number of interesting peculiarities in the working periods, periods of disability and curves of wages of females as compared to males. The small number of females showing any period of partial disability is peculiar to the sex, as an occupation once interrupted in the female by a course of chronic disease is seldom resumed. *Change of occupation* is also infrequent. The short average working period is also striking. *Chart 5 may be taken as a fair average* in which the working period is only nine years eight months, and is contrasted with eighteen years six months for the same class of consumptive wage-earning males. The shortness of the period of complete disability among the wage-earning females is probably accounted for by the fact that the majority of female wage-earners are very much younger than the male, and hence their disease takes a more rapid course.

Chart 9 indicates the average working period of 53 females decedent in 1903, in whom disability was never partial (being complete from the onset). The terminal period of complete disability is shown at the curve of average wages. The average working period of these 53 females is nine years eight months; the period of complete disability is eleven months and three weeks. The average daily wages range below $0.50.[1]

The maximum wage-earner among these females was 37 years old at the time of death, having had a working period of eighteen years, during which time her daily income was $3, declining to 0 during the one-year period of complete disability.

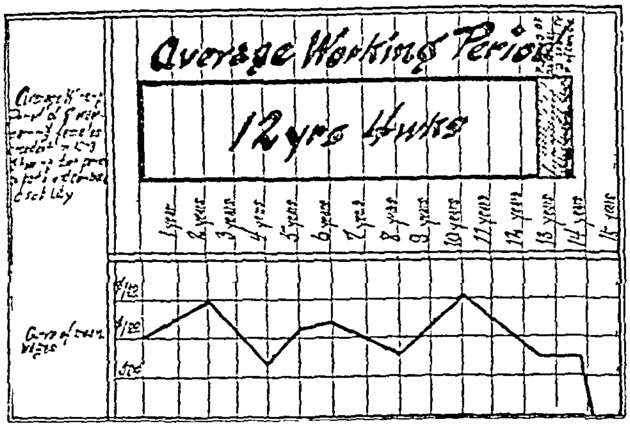

CHART 8.

Chart 10 is the average working period of six females surviving with tuberculosis in 1903, but completely disabled. There was no period of partial disability among these cases. The curve of average wages is shown for the working period. The average working period among these females until completely disabled was seven years, five months, two weeks.

The average period of complete disability up to the end of 1903 had lasted seven months and three weeks. The curve of average wages had exceeded $1 during this period.

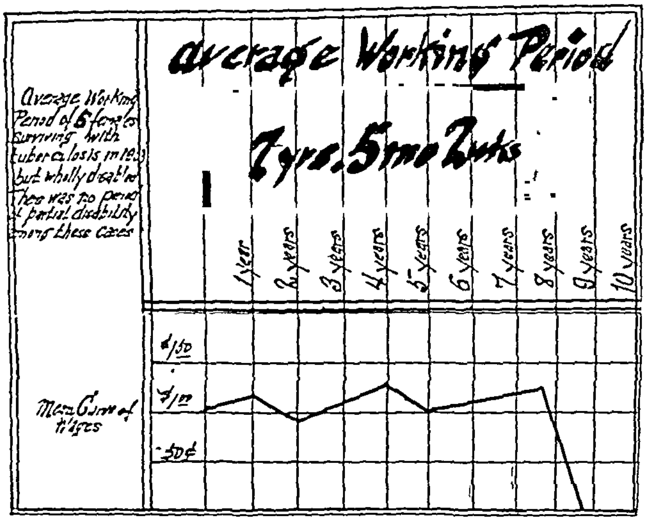

CHART 10

A study of the course of each individual case of tuberculosis from the economic standpoint shows many interesting relations. On the four succeeding charts the economic course is considered for each individual after each has reached the stage of impaired earning capacity. The 79 cases considered on these charts have been divided into four classes, according to the institutions or societies under whose care they were reported. Each case is traced from the time of its economic impairment through the zone of partial disability, through the zone of complete disability to its final termination either in death or in recovery.

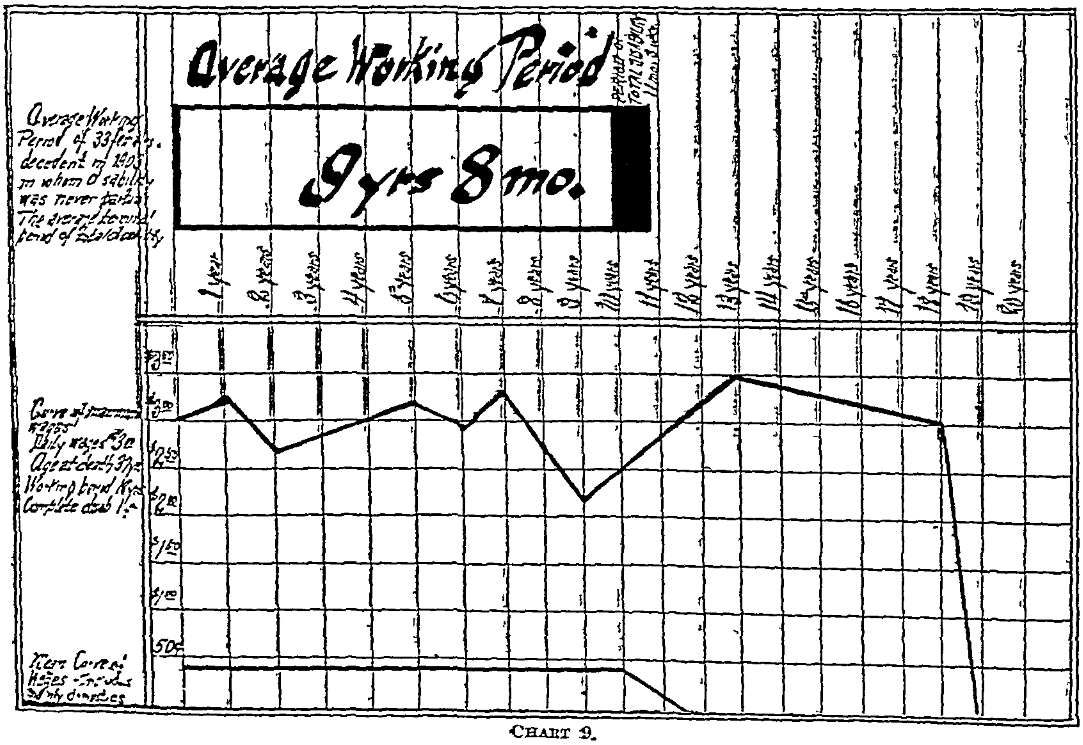

CHART 9.

Chart 11 *represents fifteen cases* reported by the Johns Hopkins Hospital terminating fatally, and shows the individual economic course for each individual. The appearance of each case on the chart notes its entrance in the period of partial or complete disability. The center band indicates the zone of partial disability, the shaded band below complete disability and the black band at the bottom of the chart indicates the zone of death.

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[1] This class includes a number of domestic servants in whom only the actual money wages is computed and no allowance made for board or lodging

The duration of each case in each of the zones mentioned is indicated by vertical lines, which correspond to the months. The duration of each case up to the time of its entrance into one or the other of these zones is very variable. The longest duration efore the period of economic loss noted on the chart is 6 months, Case No. 3. In one case it was over six rs and in one case over three years; two cases over two years and in one case over one year. Six cases, or a little over 40 per cent., the duration was over a year before there was any impairment of their earning capacity. In four cases the economic disability appears synchronously with the onset of the disease. The longest period noted of any case in the zone of partial disability is over two years.

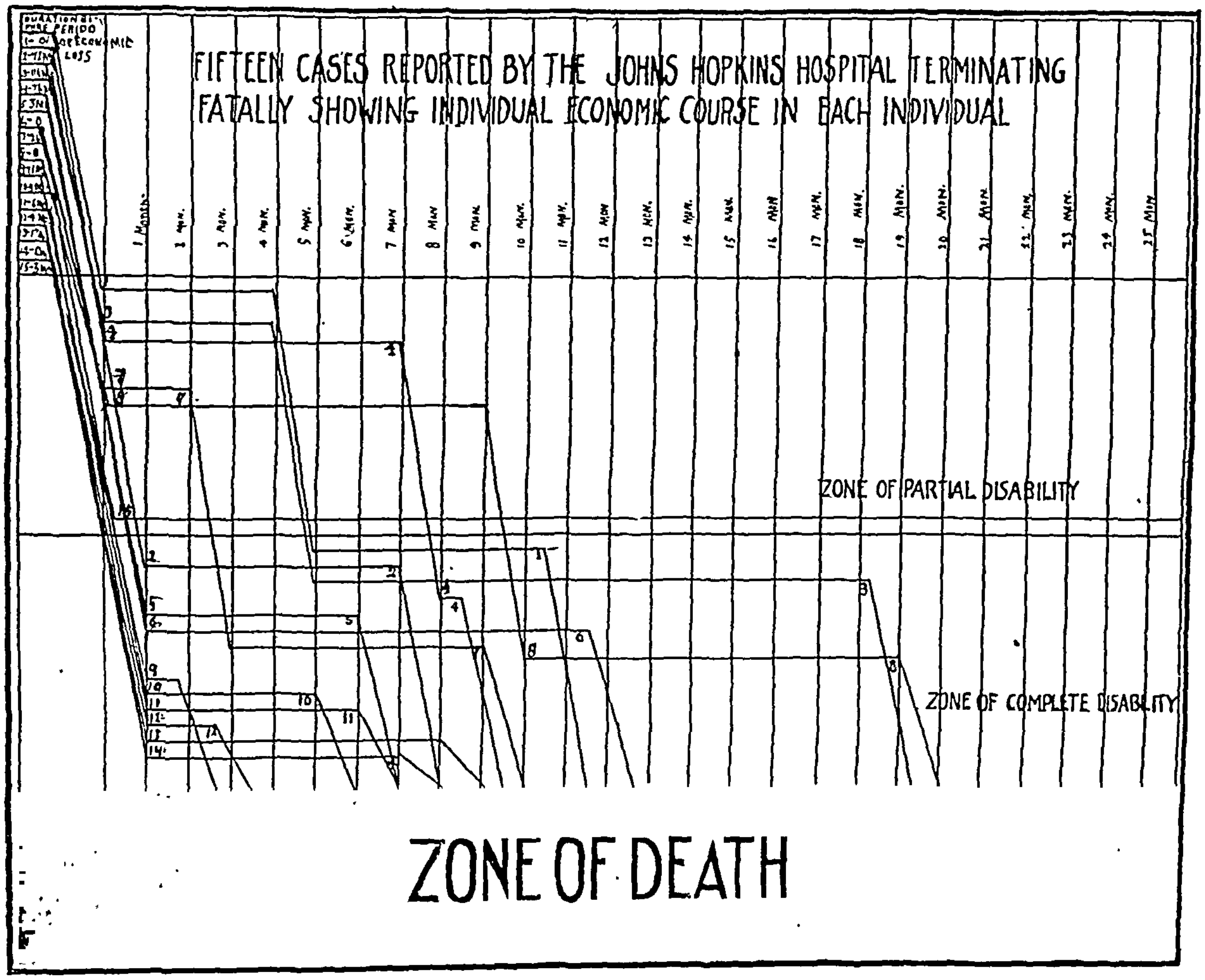

Chart 11.

By examination of the chart it will be seen that 9 of these cases passed at once into the zone of complete disability, and did not remain at all in the zone of partial disability. In Case No. 7 the period of partial disability was only two months. He then remained in the zone of complete disability for six additional months, after which his course terminated in death. The shortest period of complete disability was two weeks in Case No. 4, which, after being partially disabled for seven months, became completely disabled only two weeks before his death.

Chart 12 of this series shows the economic course of 15 cases of tuberculosis reported by Bay View Asylum among wage-earners, 11 of which terminated fatally. Bay View Asylum receives the chronically sick and disabled of the city of Baltimore. No especial provisions are made for the treatment of the consumptives, and they can seldom be induced to enter the Municipal Hospital until the advanced stages of the disease has interrupted totally their economic powers. Nine of these cases had no period of partial disability, but passed at once into complete economic disability.

The longest duration before the period of economic loss among the individuals of this series was eight years. The next longest period was six years. In 9 cases the appearance of economic loss was apparently synchronous with that of the disease.

The class comprising this series represents on the whole a low economic level. A large proportion of these cases occurred among negroes, stevedores, berry-pickers and others having no regular occupations. Case No. 1 of this series shows the least period of partial disability, and apparently takes a very rapid downward course at the onset of his disease, remaining only one week in the zone of impaired earning capacity, and only two months and one-half in the zone of complete economic disability up to the time of his death. Two cases of this series were completely disabled over two years; in 3 cases the economic course is not complete, as the cases were still living, although in the advanced stages of the disease in 1903.

Chart 13 of this series represents the economic course individually shown of 15 cases reported by the Instructive Visiting Nurse Association, 9 of which terminated fatally. The series of cases shown on this chart includes mainly the very poor wage-earners, who have been reported by the various charitable societies of Baltimore usually after a very severe struggle to maintain themselves in the upper zones of economic usefulness. The effect of this is plainly shown on the chart. In 11 of the 12 cases reported, the economic disability was complete from the onset and in only one case was there a period of partial disability. This patient, No. 1, who had maintained himself for six months in the zone of partial economic usefulness, sank into a lower level, and was completely disabled for over a month at the end of 1903.

This chart represents also the only case in the series in which there was return to a higher economic level after the original decline. This patient, after passing at once to the zone of total disability, in which he remained for three months, was able to resume light work for the period of three weeks, and was still working at the end of 1903.

Chart 14 of this series represents the economic course two months and one-half, and in five cases it was over two years.

The economic course was not determined in six individuals, who were still surviving at the end of 1903, though in the advanced stages of the disease.

Chart 15 of this series shows the average economic course of consumption in the four classes of cases reported on the preceding four charts. The shortest average in the period of partial disability is shown by the Charity Organization Society and the Association for Improving the Condition of the Poor, average one year four months. The average period of partial economic disability reported in cases from Bay View Asylum is nine months and nine days; for Johns Hopkins Hospital, eight months and six days; the Instructive Visiting Nurse Association, one week and one day. The longest average of complete disability was reported from Bay View Asylum in the average of two years, six months one day; Charity Organization Society and Association for Improving the Poor, one year; Instructive Visiting Nurse Association, eight months, one week, five days; Johns Hopkins Hospital, five months three days.

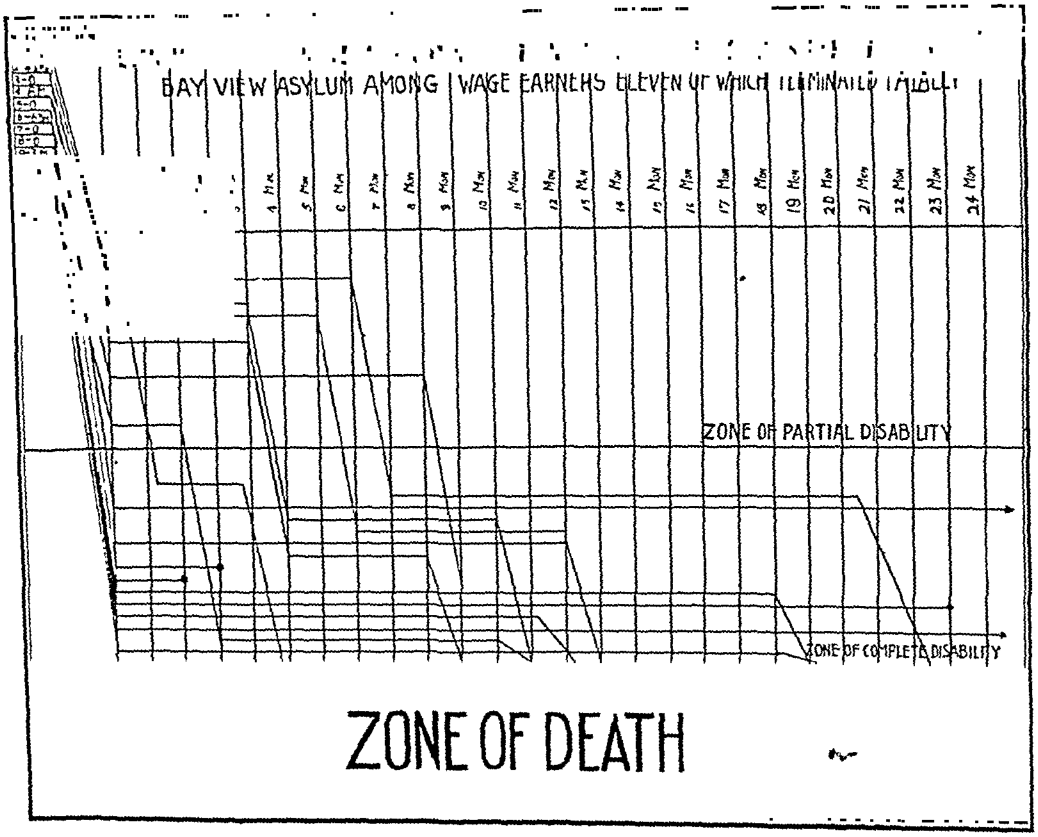

Chart 12.

individually shown for 27 cases reported by the Charity Organization Society and the Association for Improving the Condition of the Poor among wage-earners, 15 of which proved fatal. This series represents largely the same class of cases from which the preceding series was drawn, although showing on the whole a class much higher in the physical and economic scale.

In 17 of these cases, or over one-half, however, there was no period of partial disability. The longest duration for the disease before the appearance of economic loss in this series was nine years, in five cases over four years, one case over two years, in three cases over one year. In 9 cases the period of economic loss was synchronous with the onset of the disease. The average period of partial disability among these cases was one month and one-half; in two cases it was over two years. The shortest period of complete economic disability was

There are few special conclusions to be drawn from this economic study, not self-evident, other than the fact that it is possible to determine accurately one item of the many losses due to pulmonary consumption, viz., the personal loss falling on the individual incident to his disease, and to determine from this the potential loss caused by the economic elimination of the individual from the field of production.

I have briefly reviewed a few of the fallacies and inaccuracies resulting from general studies made without reference to the factors peculiar to tubercular diseases, and I hope to have sufficiently indicated the simplicity and facility with which economic studies can be made on the consumptive individual and the superior accuracy of the conclusions based thereon.

## DISCUSSION

### ON PAPERS OF DRS. PRICE AND KNOPF.*

**Surgeon-General Sternberg**, Washington, D. C., said that in Washington the great difficulty is that all legislation must come through Congress, and it is extremely difficult to get action. Grand public structures are built there and elsewhere, but a very earnest effort to get $150,000 for a tuberculosis hospital failed. There is nothing of that kind in the district, although patients are scattered over the city who should be treated in sanatoria, but are unable to secure proper treatment on account of failure to get an appropriation from Congress for such an institution. Dr. Sternberg asked members of the Section to use their influence with members of Congress in impressing on them the necessity of doing something for Washington, which, unfortunately, has a higher death rate from tuberculosis than any other city in the country, with the exception of Los Angeles and Denver, where people go to die. This is due to the large colored population, and to the bad housing conditions among the lower classes. There is an enormous infant mortality in Washington, and though it is a rather disgraceful thing, Dr. Sternberg thinks the truth should be known. The infant mortality is higher than that of New York City, and the general death rate is much higher than that of New York City or of Chicago, although not so high as that of some of the southern cities. This high death rate is a result of the very large colored population, and of the insanitary conditions under which many of them live. For years physicians have been trying to get a law providing for the condemnation of insanitary houses. There are large numbers of frame shacks down on the ground, without any ventilation under the floors, and without any water in the house, and without sewer connections. These buildings are hidden away in the centers of the squares, and people living on the main streets are often unconscious of the fact that there is such a population on these interior alleys. That is where the "lung blocks" are. During the past winter physicians were able to get through the house a very satisfactory bill. The bill went to the Senate and was referred to a committee, the chairman of which was, unfortunately, down on the health officer. He opposed the bill and the whole thing has been knocked endways because he has brought in another bill as a substitute which is unsatisfactory to the physicians of Washington.

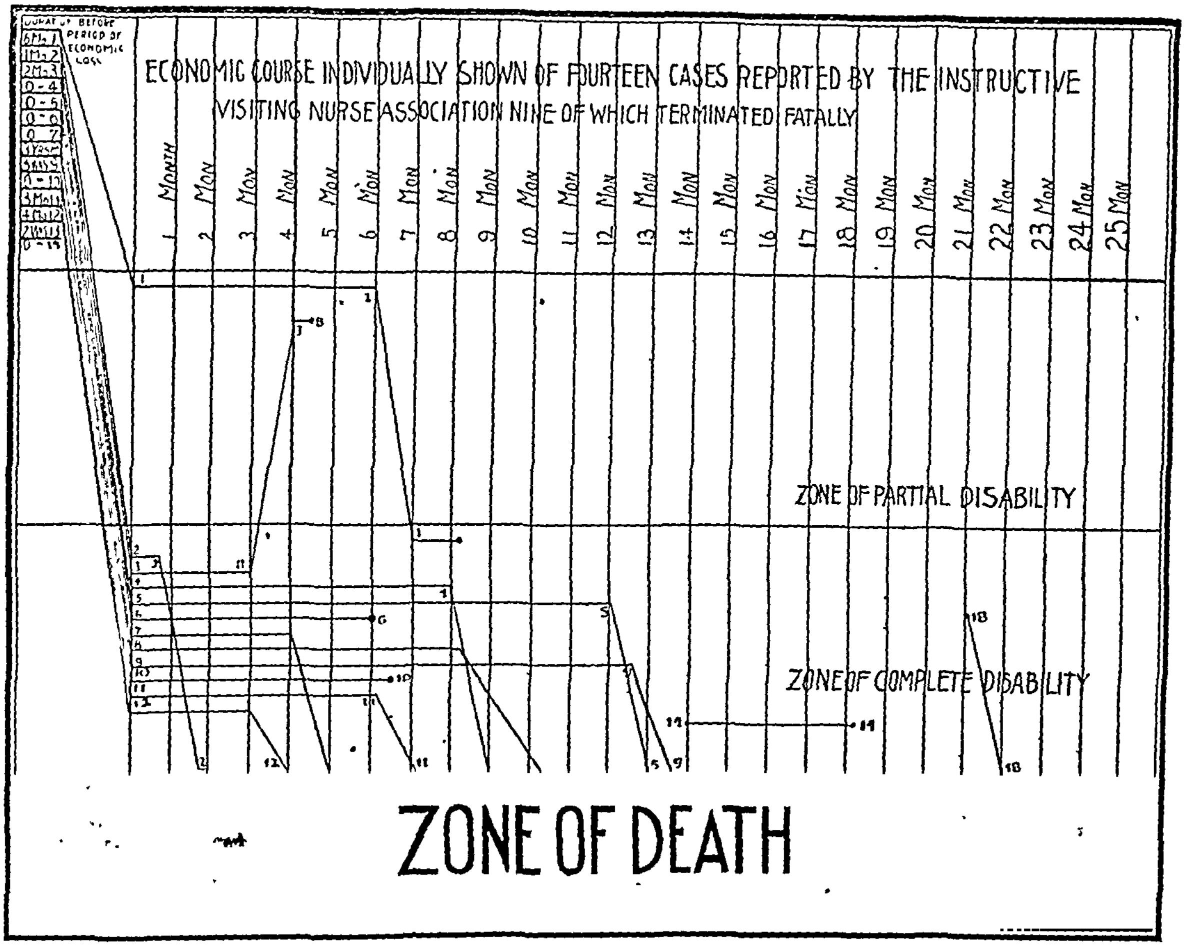

Chart 13.

**Dr. Cressy L. Wilbur**, Lansing, Mich., stated that usually vital statistics fall short of reaching their full degree of usefulness. Physicians are content if they can compare the death rates, and the study of disability and loss of time is something that few vital statisticians have gone into. Dr. Price's figures will convince members of councils and legislatures that it is important to guard the public health. Dr. Wilbur called attention to the way in which the committee has undertaken to counteract the pernicious and false advertising in regard to specific medical treatment for consumption. He is afraid, however, that this circular will not appear with the frequency and force necessary to warn the public. These advertisements appear every day, and consumptives are led to use these methods of treatment when, if they resorted to local medical advice, they might be in time to prevent the occurrence of more serious symptoms. In Michigan there were one or more of these institutions, and Dr. Wilbur mentioned one rather pitiful case of a mother whose child was in a very advanced stage of the disease, who applied to the managers of one of these institutions, and afterwards tried to get a death certificate from them. They were not in a position, under the medical registration law, to issue a certificate, as they could have been punished in court for giving medical advice and treatment without being registered physicians.

**Dr. J. M. Barrier**, Delhi, La., stated that this subject is of great interest to people in the south. Tuberculosis is much more prevalent in the negro race than in the white race. During the last few years, since the negroes are leaving the agricultural districts and are flocking to the cities, tuberculosis is rapidly increasing, not only in the large towns of Louisiana, but in the smaller towns, and very little has been done toward improving these conditions. A committee is appointed at nearly every meeting of the state society to make an investigation and to report, and that is about all that is accomplished. There is no question but that the sanatoria treatment is the treatment for consumption. The profession has accomplished much, and the subject has been studied from almost every standpoint. The public has been kept informed of the improvements in the manner of treating this disease, not only as a disease affects the state from an economical standpoint, but from a social standpoint, and from nearly every standpoint. The only way in which physicians can get what they need is just simply by making a demand for those things; in other words, going into politics. Dr. Barrier said that, of course, nothing can be accomplished, politically speaking, in Louisiana until the profession is better organized, and until a sufficient number unite and can go to the politician and say to him that they want certain things done. For instance, in Dr. Barrier's county, when a man is running for the legislature they say to him that the parish has passed a certain resolution and ask him how he is going to vote when this question comes before the house. The politician is very much like putty, and when it comes to getting votes he will change his platform if it is necessary. If physicians will simply get together and demand what they want they will succeed in accomplishing good results.

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*The paper by Dr. Knopf appeared in The Journal Feb. 11, 1905.

Dr. C. C. Browning, Highland, Cal., stated that Dr. Knopf, in order to accomplish his results with the kind of politicians he describes, recalls the maxim of David Harum, which was: "Do to the other fellow as he would do to you, but do it first." He should get hold of the politician last, or some other fellow will get him and mold him in his own way. Dr. Browning called attention to the matter of individual effort. He said that he realizes when looking over the splendid laws of some of the eastern states that the sun rises first on the people of the east. It reaches California later, that is, in regard to sanitary laws. He was glad to say, however, that the twilight is breaking over the mountain tops, and when the next legislature convenes the sun will have fully risen. An honored member of the medical profession is governor of the state, and one of his first acts was to appoint an efficient state board of health. In the absence of adequate laws efforts have been made to accomplish something by organized effort. Southern California is one of the places where tuberculosis patients go to die; that is to say, many go and do die, and Dr. Browning referred to the cruelty that is perpetrated by physicians in sending patients out there without money, without friends and alone. Young people come there and go into tents, sheds and shacks, or any place that will afford them shelter. Two sisters went there with less than $5 between them, because they had heard that orange packers got from $1 to $1.50 per day. Under the auspices of the Southern California Medical Society an organization was perfected in December, 1903, known as The Anti-tuberculosis League. They have accomplished their work in this way: One of the members of the committee, who was in touch with one of the county board of supervisors, obtained from the superintendent of public instruction the number of families in the county represented in the schools. With that information he went to the board of supervisors and explained to them the nature of the literature that it was proposed to publish, and at the close of this conversation with the supervisors he suggested that the superintendent of public instruction might distribute these circulars as he visited the schools, which he does each year. The president of the board inquired how many would be needed for the county and was told. A motion was immediately made that the board pay the expense of printing these circulars. Now, within six months, four counties have paid for 120,000 of these circulars, and they are being distributed through the schools. The interest of the county superintendent of schools is very valuable, because at the teachers' convention he may call some competent physician to deliver an address on how these circulars should be used. That is one

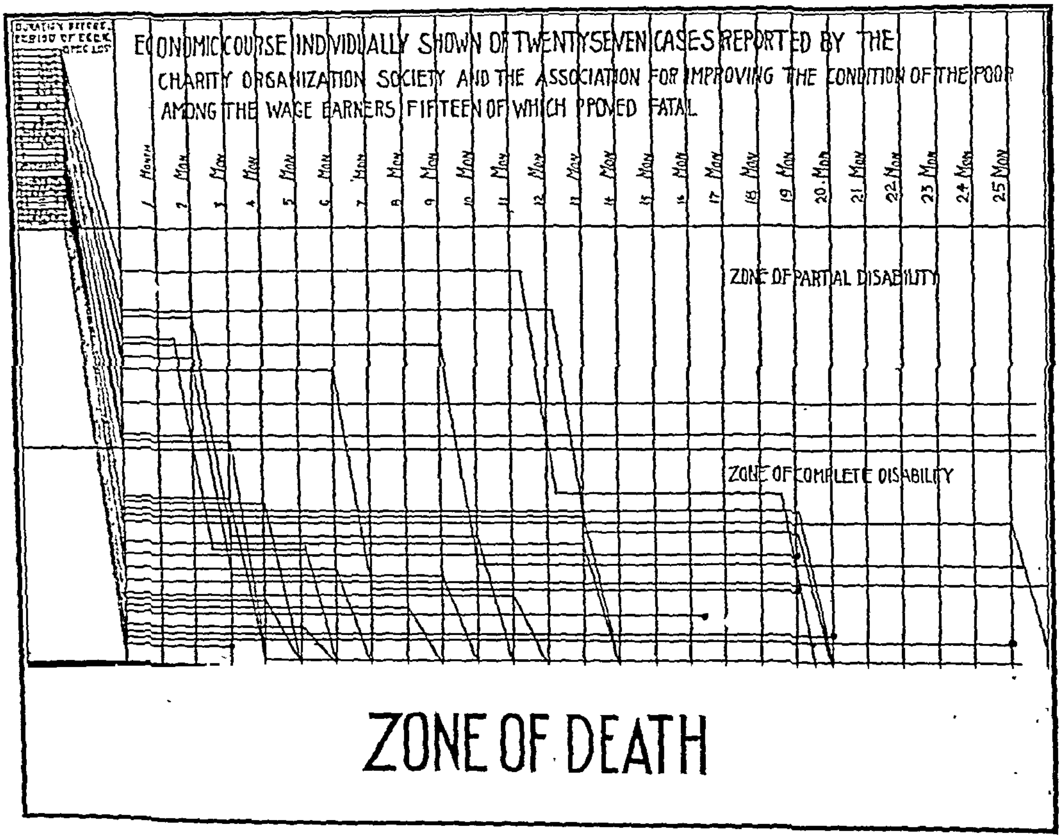

Chart 14.

way of getting this matter before the people in a manner in which it will be read, because the parents are apt to read what the children bring home from school. If the people become sufficiently interested in this subject then it will not be the physician alone who will demand legislation, but the people at large. In reply to a question Dr. Browning stated that tuberculosis is not very prevalent among natives of Los Angeles, but, of course, a certain number contract it, and nearly all of these patients die quickly.

Dr. H. M. Bracken, Minneapolis, said that recently he visited a state sanatorium in course of construction. It was most disappointing—a big brick building, four stories high, located in the woods. It reminded him more of an asylum or prison than of a place in which to care for incipient tuberculous individuals. He visited also a municipal sanatorium that was all it should not have been. Each of these institutions cost about $225,000, and each will accommodate about 80 patients, which means a cost per patient for housing of nearly $3,000. There are but few cities where the sanitarian can secure any great amount of assistance from the municipal authorities to aid in this work. Medical men working with laymen through independent organizations will accomplish more good than is possible through any municipal government alone. An organization under the control of an unselfish board of directors often can expend money to much better advantage than can municipal or state officials. In Pennsylvania much has been done in caring for the tuberculous, although no sanatorium as yet has been established by the state. This work has been carried on by the charitable organization known as "The Free Hospital for Poor Consumptives." The state has given some money to this organization, which has been expended to much better advantage, and has accomplished more than could have been accomplished through a state institution. There is a tendency to spend too much money per capita in the housing of state tuberculous patients. When there are good organizations in cities and states, made up of laymen and physicians, they can then go to the governing powers and ask for aid. If, under such circumstances, these bodies give only money, more good can be done with it than if they were to give institutions and appoint the people to govern them. The state authorities should be urged to provide for tuberculous individuals in state institutions. Very few, if any, states have made proper provision for the care of their tuberculosis wards. A few years ago Dr. Bracken visited a state institution where tuberculosis was very general, indeed, the infection passing from one inmate to another. This was in an overcrowded reformatory. A farm plan might easily have been adopted for that institution and, in that way, much might have been done to prevent general infection of the inmates.

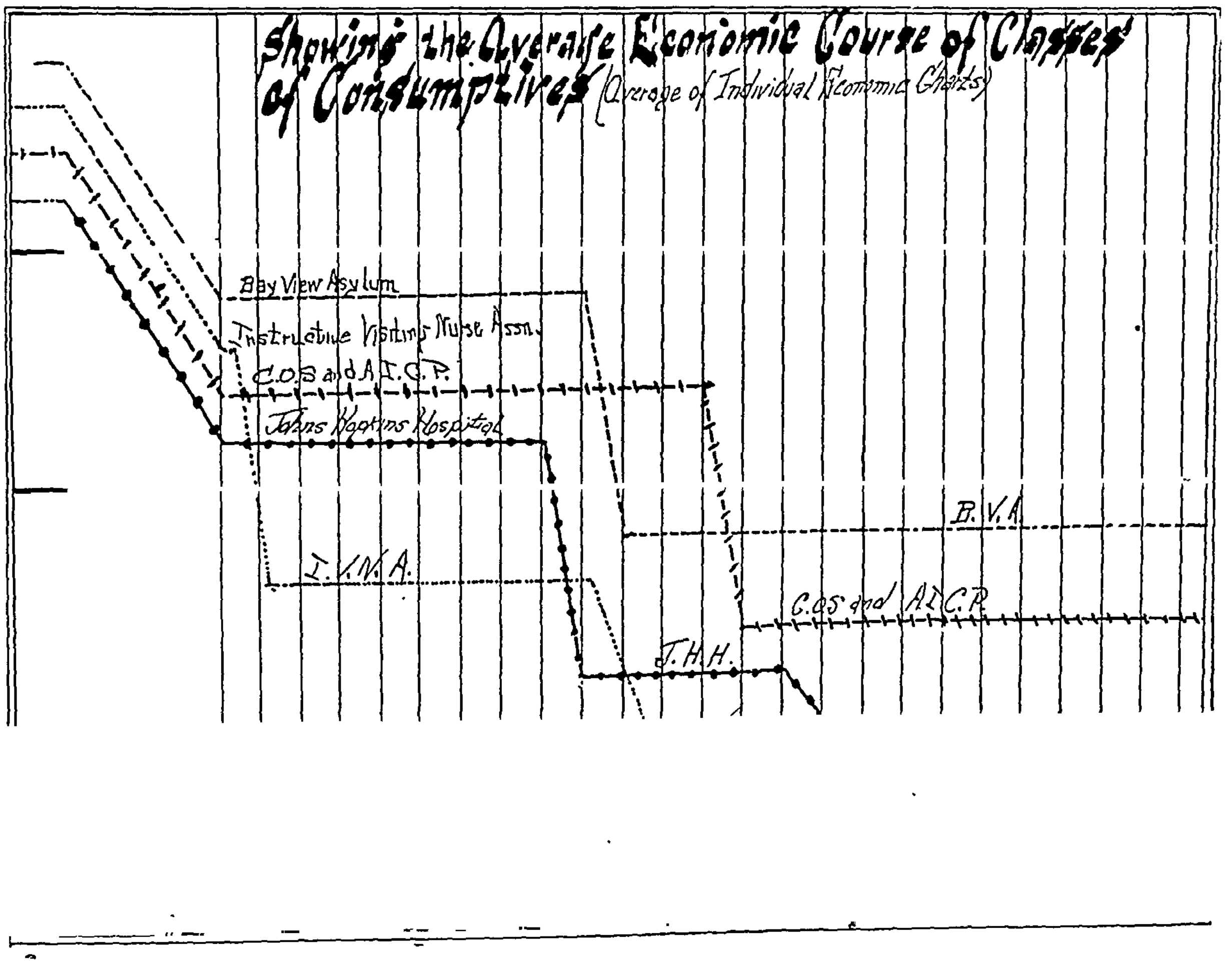

Chart 15.

Dr. W. G. Young, Washington, D. C., asked what has been the effect of the establishment of different sanatoria and homes for consumptives in different localities, on the inhabitants or the natives of those localities. It seems to him that if an individual is afflicted with such a dangerous source of infection that he could be legally removed from a tenement district, that the segregation of such individuals in homes provided for them is likely to be a source of trouble, and unless some rules are adhered to it must be dangerous to the district. Dr. Young agreed with Dr. Sternberg in saying that the members of the Section can help very much as a Section and as individuals. Citizens of Washington have no senator and no vote. In other words, they are simply blank units, and will have to ask the help of the outside boards.

Dr. G. A. Hare, Washington, D. C., said that it seems to him a most important thing that a crusade of education be waged against tuberculosis. The only hope for success is by continual agitation. The facts must be brought before the people who are interested. Fifteen years ago fear of tuberculosis drove him west, and he has seen people by the thousands go into California only to die—most of them died from lack of knowledge. The economic problem has been forced on his mind many times, and he feels certain to-day that if a campaign of education is waged, as has been done in Michigan, New York and other places, great good will be accomplished. Dr. Hare does not believe that Dr. Barrier's plan is a practical way to control this problem, because politics are influenced very largely by the present system of spoils, and there is not very much spoils for the politician in this proposition. It seems to Dr. Hare that if physicians would educate the people by giving them the facts and the results of the experiments that have been made, they could secure their co-operation in this work. Let it be known that every resident of every state is threatened by the present insanitary conditions because the poor and the unfortunate people in their district who suffer from tuberculosis are not properly provided for; and this very fact of itself will be sufficient, if it is made a matter of common knowledge, to secure a great deal of relief from philanthropic people and to mold a public sentiment that will demand legislative relief. The indirect economic side of this question is enormous—the deprivation to the family because of the lessened amount of wages earned, the impoverished feeding, the insufficient clothing, all of which lessen the vital resistance to this disease, and increase the dissemination of tuberculosis poison. These are some of the indirect effects which are in themselves extensive factors.

DR. S. A. KNOPF said that when a national association for the purpose of fighting tuberculosis in our country was formed, a distinguished professor of Johns Hopkins said that in the solution of the tuberculosis problem we must look for enthusiasm to the young men in the profession. Dr. Knopf indorsed everything said by Surgeon-General Sternberg concerning tuberculosis in the capital. The readers of the daily papers of New York were very much impressed by an account recently published by Jacob Riis, one of the most distinguished practical philanthropists in New York, of visits he had made to those dark alleys located behind the fashionable residences in Washington, and the picture he drew of what he had seen was appalling. In the miserably built shanties there were six and eight people living in one room, diseased and healthy, male and female, indiscriminately huddled together. With the surgeon general, Dr. Knopf said that he earnestly appealed to every American citizen to be helpful in seeking to remedy these conditions, as a result of which tuberculosis is so frequent among the colored population in Washington. Dr. Knopf said that his paper was so long that he did not relate his experience of what is done by some of the unscrupulous quacks. All had heard of the many so-called Koch concerns. A poor woman came to Dr. Knopf for examination and treatment in the hope that he could do something for her. He asked her about her family physician: she said she had none. He then asked her who had been treating her, and she replied that the Koch people had been treating her for the last three months and had taken all her money. Dr. Knopf examined her and found that she was in the last stage of consumption. She told him that they had offered to continue treating her for nothing if she would sign a certificate to the effect that she had been suffering from tuberculosis in an advanced stage and that the Koch concern had cured her. The poor woman told them that poor as she was she could not commit such a fraud on the public. That gives an idea as to how these advertising "sure-cure" concerns get their certificates. Dr. Knopf agreed with Dr. Barrier that physicians should go into politics. He thinks that their duty is to go into politics, and where politics is impure to purify it, and in that way to make their influence felt for the good of the community. He does not think that it is at all degrading for the physician to enter politics for the good of his fellow-men. In reply to questions he stated that he began his medical career in Los Angeles, Cal., and there first became impressed with the necessity of doing something else than relying on the climate. In the county hospital of Los Angeles the wards were constantly full of consumptives; they had all gone to California in the belief that the glorious climate of that great state would cure them. They went there with nothing, or with only from $10 to $25 in their pockets: of course, most of them too far gone, not able to work nor able to take proper care of themselves in time. Never was he more impressed with the criminality of sending patients so far away from home instead of allowing them to die in the midst of their own family than when serving as interne in the Los Angeles County Hospital. Only selected cases should be sent to Colorado or to California. Dr. Knopf believes in the climatic advantages of certain regions, but also believes that the majority of patients, who are of the laboring classes, must be treated in the same climate, or nearly the same climate, in which they have contracted tuberculosis, and in which they desire to remain after their restoration to health. It happens not infequently, when a patient is sent to California and he gets well, that he comes back in a year or two, and the result is a relapse. Such patients, if sent to California or to Colorado, should be told to stay there. There are relatively few patients who can return with safety to the eastern climate. He certainly believes in educating school teachers. The New York Committee on Tuberculosis of the Charity Organization Society gave a number of lectures before the Teachers' College of the Columbia University. A tuberculosis hospital or sanatorium, in order to do the most good, should be established near a large city. It should preferably be situated on porous soil where there is as little traffic as possible, and should have protection from cold winds. Experience has taught us that the large pavilion system is the most convenient and best way to build a sanatorium. If institutions where many consumptives are kept are equipped and managed according to the modern conception of the prevention of tuberculosis, there is no danger. In five German sanatoria, which have been established for fifty years, the mortality from tuberculosis in the surrounding villages is about one-third less than it was before the establishment of these institutions. The inhabitants around the sanatoria almost unconsciously adopt the hygienic methods of the patients in the sanatoria. If the patient is under the care of a physician he will be careful, but the danger comes from the patient being up and about without any supervision. It has been said that appeal should be made to philanthropists. Dr. Knopf has appealed to philanthropists and shall continue to do it. If they would stop building churches, monuments and libraries for a little while and devote the money to the improvement of the condition of the poor by better housing, building of public parks and sanatoria they would bestow a great blessing on their fellow-men and will be very helpful in solving the tuberculosis problem.

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# RELATION OF SCHOOL METHODS TO SCHOOL DISEASES.*

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AND

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The inquiry which was inaugurated in the Section on Nervous and Mental Diseases at the New Orleans Session (1903) as to the relation of school methods to the production of neuroses and psychoneuroses and other "school diseases" revealed the fact that the data for such inferences were not yet available.

Such data can only accumulate from a carefully planned system of medical inspection of school children: 1. At the time they enter on the school curriculum. 2. At frequent intervals during the years they are in attendance on school.

Moreover, before the school methods can be charged with any injurious effects that may be observed, there are many other possible causes of such ill effects that will need to be eliminated, especially such as relate, 1, to the hygiene and sanitation of the school rooms, buildings and equipment; 2, to conditions to which the child is subjected outside of school hours. It would be manifestly unjust as well as unscientific to attribute results to school methods which may be due in a great measure, if not entirely, to other causes.

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*The committee appointed by the Section on Nervous and Mental Diseases of the American Medical Association, at the New Orleans session, 1903, made this report to the Section at the Atlantic City session, June 7-10, 1904.

Such time as the members of the committee have had to give to the investigation assigned to them has, therefore, been used in an endeavor to discover what has been or is being accomplished throughout the United States and Europe in the way of medical inspection of schools, of school children, and of the conditions to which the school children are subjected both in and out of school.

Our inquiry, while it has brought to us the assurance that very hopeful progress is being made in this direction, shows plainly that we are still far away from that point where the question which was raised at the beginning of this investigation, namely, the effects of the school curriculum on physical and mental health, can be dealt with free from extraneous matter.

### MEDICAL INSPECTION OF SCHOOLS.

It has long been recognized that the special knowledge acquired by the medical profession could be made to serve the cause of education in many ways, but it is only within comparatively recent times that the services of the physician have been called into requisition in any formal or systematic way to aid in perfecting the work of education.

Early in the nineteenth century Peter Frank of Austria considered the fittings for schools and the instruction in his "System of a Complete Medical Police." In Sweden, in 1832, the number of lessons in the schools was diminished for reasons of health. The first regulations concerning medical inspection in schools in France date back to the year 1833. In Germany, at Breslau, in 1864, Dr. Cohn, one of the most fervent advocates for medical inspection in schools, began the inspection of the Breslau school children, and from 1864 to 1866 he examined the eyes of over ten thousand children in search of the cause of the then recognized increasing short-sight. In Russia a physician has been appointed for each secondary school since 1871.

In Belgium, the city of Brussels first appointed special school physicians in 1874.

In England medical inspection of schools was instituted in London in 1889; in Scotland, at Edinburgh, in 1892.

In this country, medical inspection was introduced into the schools of Boston in 1890, in Philadelphia in 1892, in Chicago in 1896, and in New York City in 1897. The custom now prevails very generally in the cities throughout the United States, and it has been adopted in many of the cities of the South American countries, also in several of those of Japan.

Wherever the work of medical school inspection has been entered on, local conditions have governed the nature of the work done and the object that it has sought to attain. The kind of investigations that have been undertaken are of the greatest variety, therefore, but for the most part they may all be conveniently arranged in the following groups:

1. The inspection of pupils and teachers with the view of detecting infectious and contagious diseases

2. Investigation as to the sanitary and hygienic conditions of school buildings. the school rooms, the equipment. the grounds and the environment.

3. Inspection of the individual pupils, especially of those who have attracted the attention of the teacher by giving evidence of impaired eyesight, hearing, or any other deficiency or peculiarity, physical or mental, other than those referred to under Group 1.

The first and second of these groups, it will be seen, relate to the conditions, favorable or unfavorable, to which the child is subjected, while the third group takes cognizance more especially of the child itself, its capacities, both physical and mental, with the view of determining in what manner it is likely to respond to these conditions.

It is a public duty devolving on the local government of any community to guard in every possible way the health and happiness of its members. When, either voluntarily or by compulsion, the children of any such community are brought into close contact and intimate relations, as in the school room, both public safety and individual right demands that all danger arising from such relations should, so far as possible, be suppressed.

### CONTAGIOUS AND INFECTIOUS DISEASES.

Some of the most dangerous and destructive diseases can become widespread and epidemic through the close association of children in the school room with but one case of such disease. It, therefore, becomes the imperative duty of the official guardians of the public health, and of boards of education, to unite in the adoption of means for the suppression of diseases which might, through the association of children in school, become prevalent. This is very generally recognized as the primary duty of the medical school inspector, and is of itself abundant reason for the appointment of such an official. The evidence which can be adduced in support of the benefits conferred on a community as a direct result of this inspection are overwhelmingly convincing.

The records of the health departments of Boston, New York, Philadelphia and Chicago, as well as of many other cities, both in this and foreign lands, show a material decrease in contagious diseases among children since medical inspection of schools was instituted in them.

In Boston, from Nov. 1, 1894, to Oct. 31, 1896, out of 23,207 pupils examined there were 6,571 cases of disease, and of these 5,818 were too ill to be in school; fully 40 per cent. of these diseases were contagious in character; the total school population at that time being 83,303.

In three months, in New York, 4,183 children were excluded from school on account of contagious diseases out of 63,812 examined.

Nine months of inspection in Philadelphia showed the presence of 5,876 cases of disease, of which 3,446 were of a contagious character.

In Chicago the mortality of children from diphtheria for the months of September and October, 1900, was materially reduced, there being 42 and 77 deaths respectively for these two months of this year, while for several previous years, before inspection was introduced. the average number of deaths from disease for the corresponding months was 85 and 127 respectively.

During a period of four months, in Chicago, 233 public schools were visited by inspectors, with the result of finding 1,417 cases of diphtheria and 306 of scarlet fever; while later, in the same city, out of a school population of 200.000, as many as 76,805 pupils were examined, and 4,539 were found suffering from contagious diseases of various forms. necessitating their exclusion from school. The president of the School Board of that city, in his annual report for 1901, states that the schools were saved from an invasion of smallpox by the vigilance of the medical inspectors, and he commends the efficacy of the system because of the direct effect of its work in checking epidemics and diminishing the amount of disease among the school children.

The frequency with which inspection is made for the purpose of removing contagious or communicable diseases varies greatly in different localities. In some places the visits of the inspector occur each week, in others only at the opening of the school in the fall, in others quarterly throughout the year, and in others the inspector responds only when summoned by the school board, superintendent or principal. The diseases looked for in some instances are limited to certain ones specially named in the local ordinance or board of health directions, while in other cases all communicable disorders that involve the general health or that of any important order, even such as affect personal cleanliness or decency, are taken into account. It will be readily appreciated that the more thoroughly this work is done in the interests of the public health the greater will be the benefit that will result to the individual pupil, and this in more ways than that of his physical well-being alone.

The custom of medical inspection even for this purpose, however, is by no means as yet a universal one. Many localities, both in this and foreign countries, still lack this safeguard to public health and security for the individual pupil. And it can be said, without hesitation, that wherever this precautionary measure is neglected to that extent at least the school method is at fault.

### HYGIENE AND SANITATION OF SCHOOL BUILDINGS.

Closely allied and almost inseparable from medical inspection, with the view of guarding against contagion and infection, is that which takes cognizance of the conditions to which the children are subjected in the architecture, lighting, heating, ventilation, seating, provision for recreation and environment of the school buildings. (Such conditions as we have classified in Group 2.) Inspection made for this purpose is but a step closer to the study of influences which work for good or ill to any child subjected to them.

It may be said that, while the importance of this kind of inspection is very generally recognized, it is not aided by the imperative element which forces recognition to the requirement for attention to that of Group 1. The fixed conditions that exist in school buildings already erected, and the trouble and expense that would be required to change them, are of themselves formidable obstacles to the adoption of suggestions as regards defects in any one of the sanitary or hygienic factors above named, even though a medical or other competent inspector should discover them and bring them to the notice of the proper authorities. Again, the less tangible nature of these influences, when they are of a faulty character, makes it more difficult to point to them as the direct cause of ill health in the pupils.

The more necessity, therefore, for delegating to physicians this work, since they are best fitted by their training to determine the value of these several factors on the health of the pupils and teachers in any concrete instance.

It is true that matters pertaining to the location, architecture, the lighting, heating and ventilation of school buildings have their specialists who are not physicians, and there are many excellent physicians who are but indifferently informed on these subjects and whose opinion as regards them would be of little value. And yet these are topics which are more closely related to the line of thought which occupies the mind of the medical practitioners than that of any other class of persons engaged in professional work except, perhaps, the teachers themselves, and since by their effects on the school population they are likewise factors which have a direct relationship to the public health, they are properly subjects for medical consideration.

Is it not a fact that it is to medical sources we must go for the most exact and complete information extant on the subjects of school architecture and hygiene, as, for instance, to the masterly encyclopedic work, *"Das handbuch der Schulhygiene,"* of Dr. Leo Burgerstein of Vienna, Austria?

As has been said, in all the progressive countries on the continent of Europe medical inspection of schools has been established either in the large centers of population, by municipal authority, as in Great Britain, or in entire countries by authority of the minister of education or public health, as in France, Germany and Russia. In all of these countries almost without exception the inspection covers the matters of hygiene and sanitation of buildings; and the recommendation of the inspectors as to needed changes or as to the requirements that must be met in the erection of new buildings must be complied with.

In this country, a committee on school hygiene was appointed by President Schaeffer at the meeting of the Department of Superintendence, at Chattanooga, Tenn., Feb. 22-24, 1898 The chairman of that committee was the present U. S. Commissioner of Education, W. T. Harris, and he had for his eight associates two state superintendents of public instruction, two presidents of normal schools, two city superintendents and two other persons of special fitness.

This committee was appointed pursuant to the following resolution:

> This department approves of the plan of creating a committee whose duty it is to make or cause to be made a scientific determination of the factors involved in the subjects of seating, lighting, ventilating and heating of school buildings; and to this end prepare and present to this body at the meeting in 1899 a preliminary report setting forth the nature of the problems involved and its recommendations for the further prosecution of the inquiry.

This committee made a preliminary report through their chairman to the parent body in 1899, in which, after dealing with the fundamental principles in the light of the most recent information of the four subjects referred to them for consideration, and setting forth, from abundant knowledge, how deplorable were the conditions existing in the public schools of this country, and calling for more enlightenment on the part of school boards, teachers and others regarding the subjects of school hygiene and sanitation, they made the following recommendations:

They proposed two plans, the first of which contemplated the appointment of a committee of experts, with an appropriation of $2,500 or more.

The second proposed that

> A series of five prizes be offered for essays on the essential points of school hygiene, the same to discuss ideals and compare them with conditions that exist in such a manner as to aid the teacher, the superintendent and the members of school committees to criticise intelligently what they find in operation, apply cheap but effective devices to correct its defects, and decide rightly in regard to new models placed before them for adoption.

It was thought that the expense of securing the desired data and expert opinions and suggestions would be much less on this plan, and at the same time the work would in all probability be done in a more efficient manner.

This report goes on to express the opinion that

> The committee of experts on the special prize essays, should not undertake to exhaust the subject of school hygiene, on the one hand, nor deal with vague generalities, on the other, but treat of each of the most important topics one by one, and to aid the teacher to make the best of existing conditions and enlighten public opinion on the subject of hygienic ideals or models.

We have ventured to quote at some length from the report of this committee, since it makes known to us, through what must be regarded as the most authoritative source. the urgent need which exists in this country at present for an organized movement looking to the universal betterment of school room sanitation and hygiene, as well as to make known to the members of this Association, so many of whom are deeply interested both personally and professionally in the matter, that our national association of representative educators are like-minded with ourselves in these matters and have been moving in the same direction. We regret to be compelled to add, in this connection, that the Commissioner of Education has informed us that no action was taken on the recommendations made by the committee of nine.

May it not be that the time has arrived for the American Medical Association to join forces with the National Council of Education and advance, by mutual aid, into a field where the interests of both bodies are inseparable.

### INSPECTION AND CARE OF THE CHILD.

We now turn our attention to the third class of inspection, that which has for its object the school child itself. In a study of the conditions needed for a harvest, excellent in quality and abundant, the seed is the most important factor; and when, as in this sowing, the seed contains the life of the nation, not alone must the soil be looked to, but we must know the nature of the seed we are attempting to cultivate.

Child study is a very comprehensive subject and one wherein new and interesting problems will never cease to arise. It is but the merest elementary work that is done when the attempt is made to take a simple inventory of the child's physical and mental equipment at the time it enters on the school curriculum and at certain stated periods during its course of school attendance.

To a certain extent this has been done by the teacher throughout all time. And the better the teacher the more accurate and discriminating has been her observation as to the physical peculiarities and mental disposition and aptitudes of each pupil. But no matter how careful an observer the teacher may be, she is not expected, as a rule, to have expert knowledge in other fields than that of her peculiar vocation. She is greatly aided in the detection of eccentricities and oddities in her pupils by the physician, and his suggestions as to the manner in which the facilities she has at her command may be made to adapt themselves to special cases has received her grateful acknowledgement.

This pupil, though bright in many ways, frequently blunders in reading the exercise from the blackboard. Has he defective eyesight? Another, though apparently attentive, does not seem to understand at times the simplest direction. Is his hearing imperfect? Still another, though provided with seat and desk of the most approved patterns, grows weary and listless in attitude and manner, long before the closing hour. Has he spinal weakness or other bodily infirmity to account for his mental dullness? Such questions as these are constantly arising in the mind of the alert and intelligent teacher. But they remain unanswered, the pupils in question continue the victims of uncertainty, and the school as a whole is handicapped until it becomes somebody's business to remove the doubt and correct the defect, or make clear the exact condition that must needs be dealt with.

Here again the interest of the whole community is involved, to quite as great an extent, though in a different way, perhaps, from that brought about by the presence in the school room of a case of contagious disease. Whatever time and energy is expended needlessly by the teacher in attempts to surmount difficulties which the oculist or the aurist can alone correct is so much taken from the rights of the remaining pupils; while the duty to educate brings with it the obligation to at least point out to the parent or guardian the obstacles met with which prevents the result from being as satisfactory as it should be.

These are certain of the grounds for that personal inspection of school children which has for its object, first, the very best result attainable for the child, and, second, the increased efficiency of the school work as a whole. School committees or boards of education can safely base their action in appointing medical examiners to do this work on these safe and sound principles. And in many enlightened communities such conceptions of public duty have been clearly discerned and put into practice.

The earlier in a child's school life his or her need of special attention can be discovered the more perfectly will all interests connected therewith be served. It is so common a custom for the personal medical inspection to be made of children at the beginning of their school life in the Swiss and German schools that it may be properly spoken of as the system of those countries. This is by no means true in other countries, and is lacking even in many places where medical school inspection in some form has been long established. It is deemed sufficient in many places to have each child examined once during its attendance on school, and this may not occur until it has been a pupil several years, while in still other places it is the custom to limit the personal inspection to such pupils as have, by some physical or mental peculiarity, attracted the special notice of the teacher, and this may be after it is well along in the school course.

In this country every variety of plan is in operation in different localities as to the time and extent of the individual examination of pupils, when made for other purposes than that of detecting the presence of contagious and infectious diseases.

In some few places the examination is a routine one, all pupils are subjected to it on entrance and at more or less frequent intervals during their school life. The examination takes into account the condition of the sight, hearing, physical development and posture, mainly, though in some few instances the inspection is much more minute and takes cognizance of the vital capacity, the nature of the respiration, the presence of nasal obstructions, the condition of the skin, the spine and the mental peculiarities and aptitudes.

This more detailed examination is usually undertaken only in such places as have made special provision for "exceptional" children (to adopt the term suggested by E. L. Stevens, associate superintendent of the New York City schools, in place of "defective," which is objectionable for many reasons).

In Chicago a most elaborate method of physical and mental investigation of the public school children has been recently inaugurated, which all interested in this subject will watch carefully in order to discover what special advantages it may reveal. It consists of a combination of measurements, tests and experiments, such as are employed in departments for physical culture and in the psychologic laboratory. They are designed to obtain, after the most exact methods of scientific research, the information regarding the child's development and mental activities, which have up to the present been estimated by rule of thumb, without the use of laboratory apparatus or the aid of instruments of precision.

This attempt in the "Windy City" indicates, we may say, the high-water mark which efforts at medical inspection have so far reached either in this or any other country and is a fair sample of Chicago's originality and push. It is questioned as yet how far this personal examination of school children can be undertaken with profit. In the opinion of your committee, there is a great good to be gained from investigations such as these, provided they have a definite aim, for only from such systematic, careful and minute study can such data be gathered as will make clear to the educator the right adaptation of the amount and character of mental stimulus to the state and periods of physical development of the growing child.

Some of the results of personal inspection already obtained, however, leave no doubt as to their utility both as regards the benefit conferred on the individual child and their influence in improving the work of the school room.

It has been clearly demonstrated that from 20 to 45 per cent. of children attending our public school have defective eyesight. In fully two-thirds of these the vision is so imperfect as to be in need of treatment by properly fitted glasses or otherwise. Before examination by experts was made, in only a small proportion of this number, not to exceed 10 per cent., had the defective vision been known to either parent or teacher.

Less has been done in the way of testing the hearing, but an analysis of all available statistics as to the condition of this special sense among children show serious defects, varying from 3 to 20 per cent. of those examined, and our conclusions agree in the main with those set forth in a report made in 1900 by Superintendent Southworth of Somerville, Mass.:

"1. At least one child out of every five has some defect in one or both ears.

"2. In the majority of cases neither parent, teacher nor child is aware of the defect.

"3. Children defective in hearing are usually counted careless, inattentive or positively stupid by parents and teachers, who are ignorant of the real cause. Such children are often kept two or more years in the same grade, and, being the largest children, are not infrequently given seats in the rear of the room, where their chances of hearing are reduced to a minimum. This point is so important that it deserves special notice Out of 961 children examined in two cities, 176 (18.3 per cent.) were found to have defective hearing, while only 2 out of the 176 were known by their teachers to be deaf.

"4. A child who is hard of hearing can hear better at certain times than at others. This fact often leads parents and teachers to misjudge a child. The remark is often heard, 'Don't tell me Johnnie is deaf; he can hear as well as anybody when he wants to.'

"5. It is estimated that 90 per cent. of the cases of defective hearing can be cured if taken in time."

While in our methods of public school instruction the senses of sight and hearing are depended on too exclusively, nevertheless they are the main avenues for gaining and maintaining that relationship with the external world which is the foundation of all education, and a child's mental acquisitions and development will be in direct proportion, *ceteris paribus,* to the efficiency of these sense organs. If any testimony is needed in support of this almost self-evident proposition, one needs but to note the more frequent presence of defective eyes and ears in backward, feeble-minded and eccentric children as compared with the average child.

In the most progressive communities, as soon as a serious fault in the work of education is clearly recognized some plan for its correction is proposed and organized. Grave defects in sight and hearing, such as total blindness or deafness, have led to the creation of special institutions for the care of those so afflicted; but it is left for the public school system to provide means for meeting the requirements of the minor deficiencies of this nature, and in many places this is being done in a very creditable manner by the school authorities, stimulated and aided always by members of the medical profession.

A very large proportion of school children needing special attention are so slightly handicapped by physical defects that they can be cured, or adjusted to more favorable conditions in the ordinary school room, as soon as the nature of the defect is discovered Where the defect is of a graver or more pronounced character classes for such "exceptional" children have been organized and placed in charge of teachers having special fitness for such duty.

We have not had time for a thorough canvass of what has been done in this direction in the public schools of the European countries. But special provision was made for defective children in the public schools of Great Britain in 1892. In that country the defective child is made a study by the teacher as regards his habits, personal appearance, school record, disposition, moral nature and other peculiarities. This record is then sent to the clerk having supervision of special work for mentally deficient children, and if approved it is sent to the examining committee, the physician and the supervisor of special schools, to serve as a basis for their more expert examination. The pupils are examined both for admission and for discharge from these classes.

### SPECIAL SCHOOLS FOR BACKWARD CHILDREN.

Special schools for the mentally backward have been established in this country in Providence, R. I.; Springfield and Boston, Mass.; Philadelphia, and New York City, in the order named. There are, no doubt, many other places deserving mention in this connection, but it has been impossible with the time and facilities at our disposal to make an exhaustive investigation.

Providence, R. I., however, deserves the credit for having, in 1894, taken the initiative in this country in providing special instruction for defective children in connection with a public school system. The classes organized include both sexes.

At Springfield, Mass., a class for defective children was established by the superintendent of schools. Dr. Thomas M. Balliet, in 1898. The number of a class was limited to 15, and ages for entrance from 6 to 14.

In Boston, Superintendent Seaver, with the consent of the school board, engaged a teacher for children of this class in 1898, who was placed in charge of a class of 15 pupils in January, 1899.

At Philadelphia, the first school of this character was organized in the Hollingsworth public school in July, 1899, with the approval of the school authorities.

We have been unable to obtain the exact date at which the first class for exceptional children was started in connection with the New York City schools, but since the inauguration of the plan there it has been prosecuted with great discernment and enthusiasm by those officers and teachers who have had it in charge. Ten special, or ungraded, classes have been already organized in connection with nine of the public schools of that city, and certain of them are in charge of teachers of exceptional ability. A physician connected with the physical training department has been assigned to the examination of children who are reported by principals and teachers as defectives.

The report of the New York City Superintendent of Schools for 1903 contains an "admirable account of the work accomplished for such unfortunates in London and other English cities," prepared by Miss Elizabeth E. Farrel. It also contains a comprehensive and able discussion of the principles underlying this work as a part of the public school system, with some excellent suggestions by the associate superintendent. The motto selected for the opening of the associate superintendent's paper voices well the sentiment which has actuated all who have been aroused to lend their influence and action to this movement: "The aim of an education must be the development of the fullest and soundest mental, moral and physical life of which the particular individual is capable."

In the fulfillment of this purpose a good share of the work must, as has been seen, be done by the physician. The physician should see to it primarily that the environment of the child in the school is what it should be in the light of present knowledge, and that the child, carefully studied as to its individual capacities, is adjusted in the most favorable manner to that environment.

### CONCLUSION.

As we have sought to show in the body of this report, this primary work is as yet but indifferently done; in some countries and in some places no attempt is made at it; in others the attempt is imperfect and feeble; in a few places it is done in a most satisfactory manner.

In the opinion of your committee, the American Medical Association should place itself on record as advocating and urging the inauguration of a thorough and systematic medical inspection of public schools and school children in every section of this country:

1. In the interests of public health, since it is a potent means for detecting and preventing the spread of contagious and infectious diseases.
2. For the purpose of securing to the child, while in attendance on school, the most favorable hygienic and sanitary conditions.
3. For the purpose of getting exact knowledge regarding the physical and mental capacities of each child, in order that the methods of instruction may be intelligently directed to meet individual needs.

Thus far it would seem we can safely go in support of what the most enlightened and progressive educators are seeking to accomplish, and in this effort they should receive from this national organization hearty indorsement and assistance, as they have in many localities from its individual members.

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# THE MORTALITY OF APPENDICITIS.

CHANNING W. BARRETT, M.D.

CHICAGO.

Long before the pathology of appendicitis was so well pointed out by Fitz in his classical paper in 1886, the profession understood that there was a disease in or around the cecum that had a large mortality. Even the ancients recognized a fatal swelling in the right inguinal region. The appendix was recognized anatomically in the sixteenth century. The early half of the nineteenth century saw an increasing interest in the disease now called appendicitis. John Burne published two interesting articles in the 30's (1837 and 1839), and, while he was hampered by the unsurgical methods then in vogue, he shows much ready knowledge of the subject and speaks of the disease as of "frequent occurrence, always dangerous, often fatal and characterized by a train of symptoms so peculiar and marked as to render the recognition of them certain and not difficult." His first paper records eight cases, of which three lived and five died. His later paper details seven cases, with four deaths. With a few exceptions, he located the pathology in the cecum, if the patient recovered, and in the appendix if a postmortem was held. Until the latter part of the nineteenth century the true pathology was not generally understood, some even thinking that the perforation found in the appendix at postmortem was secondary to the abscess in the cecal region. Fitz's paper in 1886, based on thorough postmortem study, revealed the fact that many cases of peritonitis had their origin in an appendicitis, and he gave us a basis for sound pathology. Antemortem examinations of healthy and diseased appendices since that time have added much to the general knowledge of the pathology of this organ. A contest, sometimes amicable, sometimes bitter, always spirited, was waged during the next twelve or fifteen years, and to a less degree up to the present time, as to whether appendicitis should be considered a medical or a surgical disease. This is ended by most authorities conceding that it is a surgical disease, yet the majority of cases are first seen by the general practitioner, and, therefore, the safety of a case depends on the wise coöperation of the physician and of the surgeon. The lowering of the present mortality depends on getting these men who see a few cases each year to recognize appendicitis early, to appreciate the pathology, and to recommend the proper treatment. This can best be done by the general practitioners retaining enough interest in the case to follow it to the operating room. This will facilitate a more ready appreciation of conditions in the next case.

### STATISTICS ON APPENDICITIS, PERITONITIS AND TYPHLITIS.

To throw as much light as possible on the present mortality, I have, with the efficient aid of my assistant, Dr. Eddy, canvassed the death records of Chicago for the last two and one-half years, and also present in Table 1 and Chart 1 the statistics on appendicitis, peritonitis and typhlitis since 1890. The records show many things of interest and of value, although they are less valuable than we might wish, because they do not answer all of the following points: Age, sex, previous attacks, date of onset of fatal attack, date of diagnosis, treatment advised, treatment followed, date of operation, if any, conditions found at operation, complications, length of sickness.

The answer to these questions in each of the several hundred cases, to say nothing of the complete clinical and postmortem records, would go far toward pointing out the proper course in dealing with appendicitis.

A study of the reports of the Bureau of Vital Statistics since 1890 shows as follows:

| *Date* | *Typhlitis.* | *Peritonitis* | *Appendicitis* |
|---|---|---|---|
| 1890 | 220 | 16 | ... |
| 1891 | 302 | 21 | .. |
| 1892 | 412 | 25 | 1 |
| 1893 | 454 | 57 | 34 |
| 1894 | 369 | | 87 |
| 1895 | 328 | | 128 |
| 1896 | 211 | | 158 |
| 1897 | 227 | | 141 |
| 1898 | 103 | | 174 |
| 1899 | 110 | | 251 |
| 1900 | 87 | | 235 |
| 1901 | 89 | | 249 |
| 1902 | 71 | | 262 |
| 1903 | 48 | | 261 |
| 1904 (first half) | | | 136 |

This table shows a marked increase in the recorded cases of peritonitis from 1890 to 1893, inclusive; then a marked and almost steady decline until the present time. The nomenclature "typhlitis" was dropped with the beginning of 1894. Appendicitis shows an almost steady increase up to the beginning of the second half of 1904, when our study ends.

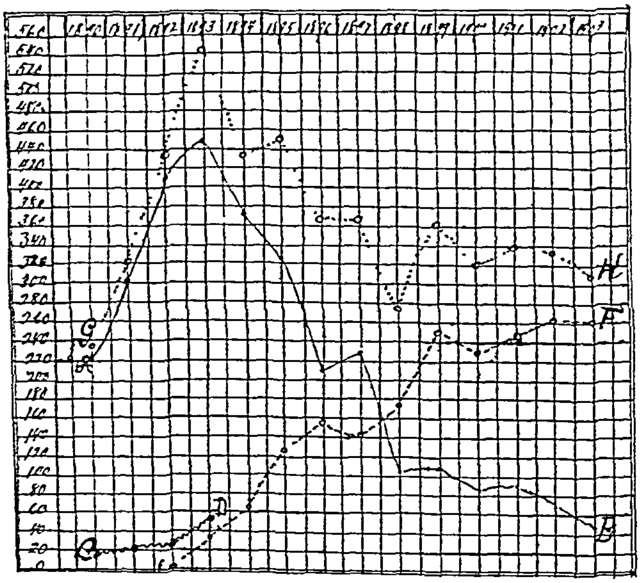

Chart 1.—A to B, peritonitis curve from 1890 to 1903, inclusive. C to D, typhlitis curve from 1890 to 1893, inclusive. E to F., appendicitis curve from 1892 to 1903, inclusive. G to H, curve showing totals of these 3 diseases from 1890 to 1903.

It is to be understood that the report of vital statistics, while being taken from the death records, can not follow the uncertain nomenclature of the death certificates, and, therefore, it is to be further understood that there are still cases of "typhlitis" reported, but they are classed with appendicitis. If there was "appendicitis" reported before 1902, it was probably classed as "typhlitis." There are still many cases of peritonitis reported, but, when possible, the authorities determine from the physician making the report the cause of the peritonitis. Further, there are less cases than these figures show reported as appendicitis. These figures represent what are considered to be undoubtedly appendicitis, including reported appendicitis, typhilitis, inflammation of the bowels, with rupture and abscess, etc. These figures probably do not reach the full number, however. Possible cases of appendicitis are excluded from the list.

A canvass of the records of death certificates for two and one-half years, beginning Jan. 1, 1902, and ending June 30, 1904, shows, for 1902, 227 cases; for 1903, 211 cases, and for the first half of 1904, 116 cases, in which appendicitis is mentioned as the cause of death or is a factor in the cause of death. This is a total of 554 cases. But Table 1 shows that the Bureau of Vital Statistics for the same period considered that 659 cases died of appendicitis and its complications, a difference of 105 cases, or 18.95 per cent. more cases than were diagnosed. A number of the 554 cases were diagnosed by the coroner. In this connection it is interesting to note some of the diagnoses returned to see how this difference is accounted for and how, possibly, a greater number of cases should be accounted for. In the death records we find such returns as the following: Hundreds of cases of gastritis, gastroenteritis, enterocolitis, cholera morbus and cholera infantum. Cases of gastritis with obstruction of the bowel. Peritonitis; peritonitis, cause unknown; peritonitis, non-traumatic; peritonitis idiopathic (I had supposed that this disease had passed into history); peritonitis, general, with intestinal obstruction; peritonitis and enteritis; peritonitis, with abscess and rupture of the bowel; peritonitis, with gastritis; peritonitis, with perforation of the intestine; peritonitis, inflammation of the bowels; peritonitis, acute intestinal catarrh; peritonitis, constipation; peritonitis, diphtheritic; peritonitis, acute, following abdominal sinus; peritonitis, indigestion; peritonitis, exhaustion; inflammation of the bowels, acute (inflammation of the bowels is classed with enteritis by the Bureau of Vital Statistics); inflammation of the bowels, rupture; perforating ulcer of the bowels, ruptured intestines; perityphlitis, typhlitis, gastroenteritis and exhaustion (operation on the second day); sepsis following abdominal abscess (in male).

We find by a study of statistics that appendicitis is the cause of death in just about 1 per cent. of all deaths in Chicago; that very close to the same number die from appendicitis as from railroad accidents; that just about the same number of deaths are reported from appendicitis during the last five years as from smallpox, since 1883; that about two and one-half times as many die from appendicitis as from puerperal fever and just slightly less than one-half as many as from typhoid fever.

This does not take into consideration the numerous possible "appendicitis" cases masked under the above vague diagnoses.

Study of this large number of cases to throw some light on the influence of sex as an etiologic factor gave the following results:

TABLE 2—Appendicitis Deaths by Sexes.

| | | | |
|---|---|---|---|
| 1897 | 104 males, | 37 females, | or 26 24 per cent. |
| 1898 | 118 males, | 56 females, | or 32.18 per cent. |
| 1899 | 150 males, | 101 females, | or 40.23 per cent. |
| 1900 | 138 males, | 95 females, | or 40.77 per cent. |
| 1901 | 141 males, | 108 females, | or 43.37 per cent. |
| 1902 | 151 males, | 111 females, | or 42 37 per cent. |
| 1903 | 145 males, | 116 females, | or 44.44 per cent. |
| 1904 (first half) | 81 males, | 55 females, | or 40.44 per cent. |

For the last two and one-half years the total number of deaths from all causes was 68,950, of which 30,023, or 43.54 per cent., were females. For this same time there were 659 cases died of appendicitis, of which 282, or 42.79 per cent., were females.

There are many diseases common to both sexes that show a smaller percentage of female mortality than does appendicitis, as typhoid fever, 40.62 per cent., and consumption, 38.52 per cent.

Taking the cases reported as appendicitis for the two and one-half years, numbering 554, we find that as to age they died as follows:

TABLE 3.

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| At 5 months | 1 | 20 years | 19 | 39 years | 7 | 58 years | 3 |
| 2 years | 2 | 21 years | 12 | 40 years | 14 | 59 years | 1 |
| 3 years | 3 | 22 years | 15 | 41 years | 6 | 60 years | 2 |
| 4 years | 6 | 23 years | 20 | 42 years | 8 | 61 years | 2 |
| 5 years | 5 | 24 years | 14 | 43 years | 11 | 62 years | 1 |
| 6 years | 7 | 25 years | 14 | 44 years | 8 | 65 years | 1 |
| 7 years | 12 | 26 years | 12 | 45 years | 5 | 67 years | 2 |
| 8 years | 16 | 27 years | 8 | 46 years | 9 | 69 years | 1 |
| 9 years | 21 | 28 years | 8 | 47 years | 5 | 71 years | 1 |
| 10 years | 7 | 29 years | 10 | 48 years | 5 | 72 years | 1 |
| 11 years | 19 | 30 years | 17 | 49 years | 3 | 73 years | 1 |
| 12 years | 11 | 31 years | 11 | 50 years | 2 | 74 years | 1 |
| 13 years | 14 | 32 years | 9 | 51 years | 3 | 78 years | 1 |
| 14 years | 15 | 33 years | 9 | 52 years | 4 | | |
| 15 years | 10 | 34 years | 11 | 53 years | 2 | | |
| 16 years | 12 | 35 years | 3 | 53 years | 2 | | |
| 17 years | 17 | 36 years | 10 | 55 years | 2 | | |
| 18 years | 17 | 37 years | 5 | 56 years | 2 | | |
| 19 years | 22 | 38 years | 11 | 57 years | 3 | | |

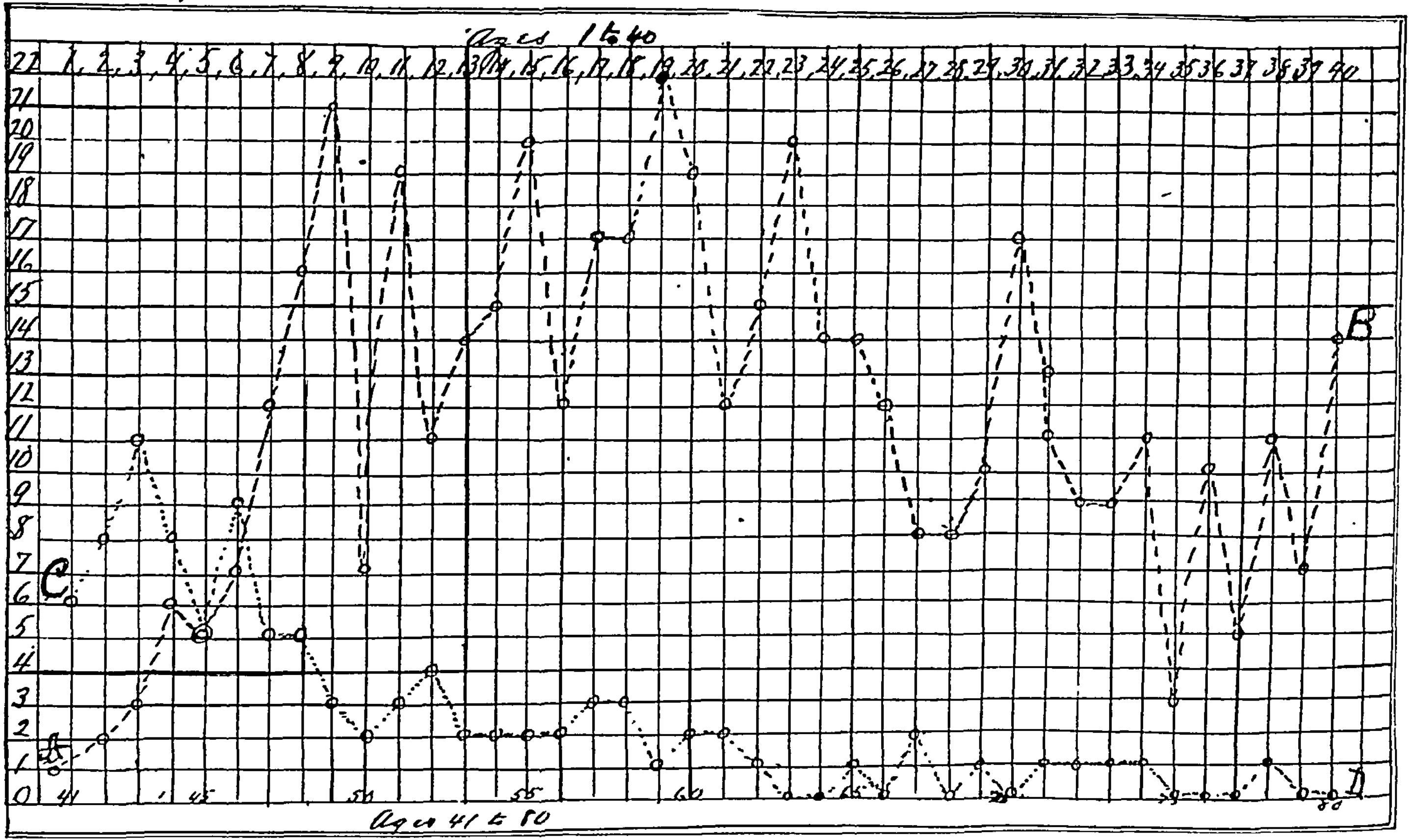

Chart 2.—Number of deaths per year of age. A to B, curve showing number of deaths each year from 1 to 40. C to D, curve showing number of deaths each year from 41 to 80.

The lowest age of death, 5 months; the greatest age, 78 years; age of the greatest number of deaths, 19, in which there were 22 deaths. The average age of death, 26.54 years.

A study of these 554 cases as to duration of the disease, while less accurate than the ages, shows some things of interest. The time is not stated in 182 cases; stated in 372 cases.

TABLE 4.

| | | | |
|---|---|---|---|
| 1 to 2 days | 9 | 19 days | 2 |
| 2 to 3 days | 24 | 20 days | 3 |
| 3 to 4 days | 41 | 21 days | 12 |
| 4 to 5 days | 42 | 22 days | 1 |
| 5 to 6 days | 36 | 26 days | 1 |
| 6 to 7 days | 31 | 28 days | 1 |
| 7 to 8 days | 37 | 30 days | 9 |
| 8 to 9 days | 18 | 35 days | 4 |
| 9 to 10 days | 6 | 40 days | 1 |
| 10 to 11 days | 29 | 43 days | 1 |
| 11 to 12 days | 2 | 60 days | 8 |
| 12 to 13 days | 8 | 75 days | 1 |
| 13 to 14 days | 6 | 90 days | 3 |
| 14 to 15 days | 19 | 95 days | 1 |
| 15 days | 4 | 111 days | 1 |
| 16 days | 1 | 365 days | 2 |
| 17 days | [illegible] | 1000 days | 1 |
| 18 days | 3 | | |

The shortest time recorded between the onset of the disease and death is 1 1/3 days; the longest time recorded is 1,000 days. The greatest number died from the end of the fourth to the end of the fifth day. The average length of the time of the disease, as reported. 16.26 days. Leaving out all cases two months old and over as being cases of chronic appendicitis, the average length of time is 8.48 days. Murphy's tables show that the average length of time that his fatal cases lived after operation was 2.8 days. Estimating this as the average time in these cases, the operation must have been performed as late as the end of the sixth day, if at all.

Again, studying these cases as to complications, we find that of the 554 cases 78 are recorded "appendicitis" without any complication mentioned. But as patients do not die of appendicitis alone, these are to be left out of the consideration. In the remaining 476 cases we have complications mentioned 702 times. Due allowance must be made for the inaccuracy which must necessarily accompany a superficial and incomplete record by so great a number of observers. Yet they derive a certain value by reason of this large number of observers. We find, in the 476 cases, the cause of death or complications was stated in the following number of cases:

TABLE 5.

| | | | |
|---|---|---|---|
| Peritonitis | 352 | Exhaustion | 4 |
| Perforation | 117 | Gangrene of the bowel | 3 |
| Suppuration | 40 | Rheumatism | 3 |
| Gangrene | 38 | Pyemia | 3 |
| Abscess | 24 | Miscarriage | 3 |
| Obstruction | 24 | Fatty heart. | 2 |
| Pneumonia | 10 | Cholangitis | 4 |
| Uremia | 9 | Brights Disease | 2 |
| Pyosalpinx | 8 | Pleurisy | 2 |
| Shock | 8 | Acute dilatation of heart | 2 |
| Adhesions | 6 | Pericarditis | 2 |
| Nephritis | 5 | Gastritis | 2 |
| Tuberculosis | 5 | Sinus | 2 |
| Endocarditis | 4 | | |

Each of the following complications are mentioned once: Perforation of the intestines, fistula, respiratory failure, cholemia, congestion of the liver, abscess of the lung, subphrenic abscess, chronic apoplexy, hernia, paralysis of bowed, acute myelitis, typhoid following bronchitis, cholecystitis, gastroenteritis, embolism, diabetes, gallstones, sepsis (septic peritonitis mentioned many times).

Complications mentioned 702 times in 476 cases show that two or more must have been mentioned many times. In some we have perforation, gangrene and peritonitis; in some only perforation, and in some only gangrene; so the actual number of cases dying from peritonitis was in excess of the number mentioned under that head, 352.

A further study of the cases shows that 384 died in the different hospitals of the city, and 170 out of the hospitals; that is, 30.68 per cent. had not the advantage of hospital treatment.

In only 105 cases it is stated whether or not an operation was performed. Of this number, 85 were operated on and 20 were not. But little weight is to be attached to this, however, for, with but few exceptions, the hospital cases were undoubtedly operated on, and with but few exceptions the house patients were not.

We learn, then, from this study, first, in Table 1, that Chicago still has a mortality from appendicitis about equal to .01 of the mortality from all causes.

Second, from Table 2, we find that the percentage of female mortality from appendicitis varies very little from the percentage of female mortality from all causes, and that appendicitis is to be looked for as common in the female, notwithstanding the old belief that it was rare.

Third, Table 3 shows the greatest mortality at the best period of life, early adult life, the greatest number dying at any one year of age being 22 at the age 19, the average age for all deaths being 26.54 years.

Fourth, Table 4 shows that leaving out the chronic cases, the average duration of the disease in the 372 cases in which the time was mentioned, was 8.48 days. Murphy's mortality cases show that the average time after operation until death was 2.8 days. This demonstrates that this vast number of fatal cases were operated on at the end of the sixth day, while all authorities concede that an operation on the first or second day is safe and desirable.

Fifth, Table 5 shows that the most frequent cause of death in appendicitis is suppuration of the appendix, followed by perforation, gangrene or passage of the infection through the wall and peritonitis; and further, that adhesions and obstructions are common.

Sixth, we find that many cases did not have the advantage of hospital treatment or of an operation.

Seventh, an early diagnosis is most desirable, yet the Bureau of Vital Statistics considers that a diagnosis was not made at all in 105 cases; a few of the remainder were made by the coroner. Some were made postmortem, and we can never know how many were made too late for any operation to save life. The long but only partial list of vague diagnoses copied from the death certificates show that in all probability some cases escaped detection.

We learn by our mistakes, and here are over 600 of them when measured by the layman's yardstick, results. Viewing it from our standpoint, I think there is no denying the fact that a large percentage of these cases could have been saved by an operation at the right time. If the physicians who had charge of this large number of fatal cases were questioned as to the reason for delay, supposing a diagnosis had been made, the following answers would be common: First, the people would not consent to an operation. Second, I was treating the case medically until I could detect pus. Third, I was waiting for the "interval" when a safe operation could be performed. Fourth, I was treating the case by the "starvation" method. (This last, in my experience, is by far the most common.)

This paper can not interest itself with the reason for the layman's refusal to comply when an early operation is advised, further than to say that it is largely, although not entirely, due to the failure of the profession to have unanimity of mind as to what is best to be done. Too frequently we see physicians approach even so important a case as appendicitis with feelers projected to detect the people's wishes, and then advise accordingly.

### WAITING FOR PUS.

"I was treating the case medically until I oculd detect pus."

There is no greater fallacy than the idea that an unruptured appendix deserves medical treatment, but that the advent of pus outside the appendix is an indication for insistence on an operation. A physician harboring this opinion—and there are not a few—should remember that so great an authority as Osler has said, "There is no medical treatment for appendicitis." Knowing the virulence of the appendiceal infection, its tendency to break through the wall of the appendix and cause a fatal peritonitis, the man who deliberately sits waiting for pus and peritonitis can only be likened to a fireman who would stand hose in hand and contemplate a beginning conflagration in your home, and withhold the stream for fear of soiling the rugs.

### THE "INTERVAL" OPERATION.

The much-talked of "interval" operation is a wise thing to advocate for a patient in the interval. But it is sometimes a most dangerous thing to advocate and wait for during an attack. Any treatment that goes sparring for a diagnosis the first thirty-six hours and goes maneuvering for the advantage of an interval operation during the next few days, and then closes for a life or death struggle on the fifth or sixth day, will largely increase the death rate. With the onset of an acute attack of appendicitis there is an interval—but not the one so frequently alluded to—that should interest the patient and the physician. This is the interval between the onset of infection in the appendix and the time when a dangerous amount of the infection would be found outside the appendix if it were not removed. The interval between pus in the appendix and pus everywhere. This is the interval which, had a surgeon's knife cut short the possibility of "pus everywhere," would have saved the lives of most of these patients. This is the interval which must be appreciated by every physician and every surgeon in order to save a large percentage of the 600 odd cases of appendicitis which the present methods will lose in Chicago during the next two and one-half years.

### "THE STARVATION TREATMENT."

So widespread has become the misapplication of this treatment, and so potent has it become as a factor in the mortality of appendicitis, that it is deserving of more than passing notice. First let it be understood that its chief exponents do not now claim to recommend this treatment for appendicitis itself, but for peritonitis, diffused, spreading or general. Let it also be unde of different densities, the blood and the clay mixture. If the clay mixture is applied hot under such conditions something definite happens, and that scientifically—an interchange of fluids, most marked toward the clay mixture; hence the deduction that the mixture acts through reflex action and dialysis, the latter scientifically including the physical processes of exosmosis and endosmosis."

In order to test the validity of the above assertion, I proceeded in two ways: First, by making use of the clay mixture on patients at the university hospital who were suffering from pneumonia and from acute articular rheumatism. These experiments were carried out by Dr. Munson and myself. The mixture was applied hot, in a thick, even coat, following out the printed directions carefully, but the material was accurately weighed before application, and all evaporation guarded against during its use by means of coverings of oiled silk and bandages. After use the material was carefully scraped off and immediately reweighed. Thus the amount of fluid taken up could be accurately estimated.

In the second place, I made a series of experiments, using collodion sacs and dialyzers, with a membrane of fresh human skin, in order to test the dialytic power of the clay mixture. The results obtained by the case treatment were as follows:

Case 1.—Mr. A. Diagnosis: Acute articular rheumatism. The clay mixture was applied to the arms one-half inch below the elbow, three-quarters way to the axilla; 240.6 gms. of the mixture used on the right arm gained during three and one-half hours' application 10.1 gms. in weight. A gauze pad (not heated) weighing 91 gms. and covering a like area of the left arm gained in three and one-half hours 8.2 gms.

Case 2.—Mr. H. Diagnosis: Pneumonia. The clay mixture was applied to the most involved side; 203.5 gms. of the mixture gained .8 gm. in weight in three hours. Gauze pad (not heated) weighing 55.3 gms. applied to other side of chest gained .4 gm. in three hours.

Case 3.—Mr. S. Diagnosis: Acute articular rheumatism and endocarditis. The clay mixture was applied to the chest; 235.2 gms. gained .9 gm. in six hours. A gauze pad weighing 58 gms. gained .4 gm. in six hours.

Case 4.—Mr. S. Diagnosis: Myxedema and acute bronchitis 217.6 gms. clay mixture applied to the chest gained 1.7 gms. in four hours. A pad weighing 80 gms. (heated) applied to the other side of the chest gained 2.1 gms.

Case 5.—Mr. F. Diagnosis: Acute articular rheumatism. The right knee was swollen and red; floating patella. As there was considerable fluid just beneath the skin and capsule, this was an ideal case for exosmotic action. A large area, 11 inches by 11 inches, was covered with a thick layer of the clay mixture, weighing 380 gms. The gain in weight after eighteen hours' application was 3.2 gms. A large heated pad alone, weighing 176.1 gms., was now applied to the same area and gained 3.7 gms. in weight in eighteen hours.

An analysis of the above results shows that, in the first case, the clay mixture gained 1.9 gms., in the second .4 gm., and in the third .6 gm., more fluid than a gauze pad similarly placed, but these gauze pads were not heated nor were they nearly so heavy as the clay mixture used. In Cases 4 and 5 the gauze pads gained, respectively, .4 gm. and .5 gm. more fluid than the clay mixture. In these cases the gauze pads were applied hot, but, again, were not one-half so heavy as the clay mixture used. On the whole, the gauze pads and clay mixture prove practically of equal value in taking up fluid from the skin. Furthermore, one is immediately convinced that no process of osmosis or of endosmosis is involved, for the much simpler explanation suffices, that the gain in weight is due to the absorption by the clay mixture or the gauze pad of the increased local perspiration, which latter, in turn, is due to the local application of continuous heat.

The results obtained in the dialysis experiments are also of interest. Large-sized collodion sacs were made by forming them over specially constructed test tubes. In one collodion sac was placed a sufficient amount of the clay mixture, removed from a freshly opened one-half pound can, to give a fairly thick, uniform inner coating to the sac. The total weight was 29.9 gms. This was suspended for twenty-four hours in a beaker containing normal saline solution, then removed and reweighed. There was an increase in weight of 4.6 gms. The second collodion sac was filled with absorbent cotton, the total weight being 18.46 gms. Suspended for twenty-four hours in normal saline solution there was a gain of 5.4 gms., or .8 gm. more than was gained by the clay mixture.

Two dialyzers were now constructed with membranes of fresh human skin. The epidermal layer was placed on the inner side of the dialyzer, so that the clay mixture would be directly in contact with it. Eighty-five grams of the clay mixture were then placed within one dialyzer and smeared over the membrane in a thick, even coating. The total weight was 265.7 gms. On removal, after twenty-four hours' suspension in normal saline solution, the gain in weight was 2.59 gms.

The second dialyzer was filled with absorbent cotton, so that the entire weight was 193.1 gms. On removal, after twenty-four hours' suspension in normal saline solution, the gain in weight was 3.15 gms., or .56 gm. more than gained by the clay mixture. The skin membrane in each case became softened and thickened, practically water-logged, before any fluid passed through. Whether such a condition ever occurs in the living human skin is extremely doubtful; indeed, the prevalent scientific opinion is that nothing passes from within outward through the intact skin except by way of the sweat glands. It follows, therefore, that we can rationally explain the increase in weight gained by the absorbent cotton only by absorption of fluid from the skin surface after secretion by the sweat glands, and, since absorbent cotton is more efficient, weight for weight, than the clay mixture when used under like conditions, the statement that the latter acts by means of a special process of dialysis becomes a *reductio ad absurdum.*

Whatever value the clay mixture may have in the treatment of boils is owing to the fact that it, like any other poultice, furnishes more or less constant heat and moisture; but the most ridiculous, and likewise dangerous recommendation is its use in open and septic wounds. Notwithstanding the fact that surgeons long ago discarded the use of poultices in all open-wound treatment, nearly every hospital surgeon can instance one or more cases like the following: Patient had a slight infected wound of hand; the attending physician applied a thick coating of the best known clay mixture, thus practically sealing off the infected focus. The pent up infection now rapidly involved the whole arm and the patient was brought to the hospital with a severe extensive septic cellulitis and areas of gangrene and sloughing. Such a case was quite recently treated in the surgical service at the university hospital.

In acute articular rheumatism the indications are to obtain rest and suitable support for the inflamed part and to administer the well-known internal remedies. If the local application of heat is desired, it can be as well obtained by means of any one of our older, simpler and reliable methods.

The use of a clay-mixture poultice in pneumonia serves merely a single purpose, namely, a means for the application of heat to the chest wall. Aside from the demonstrated fact that a heated cotton pad or a flaxseed poultice is more efficient, the clay mixture has other serious disadvantages. Thus, I would point out that a thick layer of the heavy clay mixture applied to an infant's thin chest wall seriously impairs respiration; again, both in infants and in adults, the presence of the clay mixture makes it impossible to make with accuracy the careful physical examinations which here are especially needed, both to indicate the disease progress and as a basis for proper treatment. As a matter of fact, the use of heat in any form is rarely indicated in pneumonia, except when occurring in babies and in old people.

The use of cold by means of the icebag and coil is far more advantageous than heat. Cold not only relieves the pain as well as heat, but also relieves the cough and improves the breathing. Even in young children, a coil or light icebag, not kept on all the time, seems better than the use of heat, and in the cases above mentioned, where heat is useful, the cotton jacket should be used in preference to poultices. I may well end this discussion of the value of clay mixture and other poultices in pneumonia by quoting from Dr. Dock's article on "The Value of Internal Medication and Local External Applications in Pneumonia,"[1] in which he says:

> Two or three years ago it would have been unnecessary to speak of poultices in the treatment of pneumonia. They often relieve symptoms, but can usually be substituted without loss by the cotton jacket. Within a short time the poultice has been revived in a new form under the stimulating influence of printer's ink and an amount of physiologic and therapeutic misinformation that would make Rabelais laugh, but must make all judicious therapeutists grieve.

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# THE ETIOLOGY AND THE PATHOLOGY OF BRONCHOPNEUMONIA COMPLICATING MEASLES.[*]

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Bronchopneumonia is recognized as the most fatal complication of measles. While the pathology of the condition has been thoroughly investigated, there is yet much to learn regarding the etiology and the more minute pathologic changes which occur in the tissues. Many epidemics of bronchopneumonia following measles differ markedly in their clinical and pathologic features, and it is impossible to believe that such epidemics are always due to the same etiologic factor.

The occurrence of an epidemic of measles in one of the posts of the Department of California, many of the patients being sent to the U. S. Army General Hospital at San Francisco for treatment, and the complication of this condition by bronchopneumonia which occurred in a considerable proportion of these cases, has given me an opportunity to study minutely the pathology of this condition. In all, 89 cases were sent to this hospital for treatment; in 12 cases, nearly 13.5 per cent., bronchopneumonia developed, and, of these, 10 cases, nearly 84 per cent., terminated fatally.

On account of the high rate of mortality in this epidemic, and because of the similarity of the pathologic lesions in all the cases, I made a careful bacteriologic and pathologic study of each case, and I believe that the results obtained throw new light on the cause of this complication of measles. A complication which shows a mortality of nearly 84 per cent. certainly deserves a most careful study, in order to determine, if possible, the causation and character of the lesions present, in order that proper preventive and therapeutic measures may be taken to combat the disease. In this communication I shall not speak of the clinical phenomena present in these cases, but will give the pathologic conditions only.

All the cases occurred in young men between the ages of 21 and 30. In every case the disease began during the period of decline of the measles rash, although many authorities claim that bronchopneumonia is most apt to develop at the height of the eruption. The duration of the pneumonia in the fatal cases was as follows:

| | | | |
|---|---|---|---|
| 3 days | 1 case | 6 days | 1 case |
| 4 days | 3 cases | 7 days | 1 case |
| 4 days | 2 cases | 10 days | 2 cases |

The longest duration of the bronchopneumonia did not exceed ten days, while most cases proved fatal within a week. This epidemic was marked by great prostration of the patient and by all the symptoms of a septic intoxication. The pathology of the cases differed markedly, in many important respects, from that given by all authorities. Nine of the ten cases were accompanied by a purulent effusion into the pleura, which is stated by all authorities to be of very rare occurrence in bronchopneumonia following measles. Nine of the cases were also accompanied by abscess formation in the lung tissue, which by many good authorities is stated to be almost unknown in this disease. Beside these two marked differences in the pathology of the cases, there were numerous other pathologic lesions present in the organs which are of rare occurrence, and which show the intense virulence of the infection present in these cases. Because of these peculiarities, I believe that this epidemic is instructive, as showing what a terribly fatal disease bronchopneumonia may be in an adult when it complicates measles.

### ETIOLOGY.

As I do not know the entire clinical history of these cases, I can not state whether or not exposure was a factor in producing the disease. In only three cases did the bronchopneumonia apparently originate in this hospital, and, in these cases, it was not due to exposure, as the ward was well heated and the patients were carefully nursed.

It is well known that the infecting poison in measles is especially active on the mucous membranes of the respiratory tract, and the accompanying bronchitis and coryza are depended on as initial symptoms in the disease. This peculiar action of the infective agent no doubt assists very greatly in the production of bronchopneumonia.

Cultures were made from the lungs, spleen and the contents of the lung abscesses, and in all cases examined the culture media showed a rather rapidly growing streptococcus, which in 6 cases was accompanied by the pneumococcus; in 1 case by the *Proteus vulgaris;* and in 3 cases by staphylococci. These bacteriologic findings agree with those of most authors who have studied this disease. Thus Aufrecht states that the streptococcus pyogenes is the most frequent organism found in bronchopneumonia complicating measles, together with the pneumococcus. He says: "As the cause of secondary pneumonias following the infectious fevers the streptococcus is pre-eminent." He also mentions the staphylococci, pneumobacillus of Friedlander, colon bacillus and the tubercle bacillus as having been found by various observers. Williams states that the most frequent organisms found are the pneumococcus, *Streptococcus pyogenes,* and the *Staphylococcus pyogenes aureus.* Hale states that in secondary bronchopneumonia the pneumococcus appears in about 75 per cent. of the cases, but seems less potent in giving character to the disease than the streptococcus. He also mentions the occurrence of staphylococci, Friedlander's bacillus, tubercle bacilli and the colon bacillus. There can be no doubt that the streptococcic infection produced the symptoms which were most characteristic in these cases, and which were those of a septic condition. The organs presented the lesions of a profound septic poisoning which I believe without doubt was due to the streptococcic infection of the tissues.

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[1] The Journal A. M. A., Dec. 10, 1904.

[*] Published by permission of the Surgeon General, U. S. Army. From the Annual Report of the U. S. Army General Hospital, Presidio San Francisco, Cal., 1904.

I have not had time nor opportunity as yet to test the virulence of these cultures on animals, but I am satisfied that experiments will demonstrate that the lesions found in these cases can be reproduced in animals, if the proper methods of inoculation are pursued, and that it will be possible to show whether these lesions depend entirely on the streptococcus or on a combination of this micro-organism with the staphylococcus or with the pneumococcus. I intend also to determine, by experiment, the value of antistreptococcus serum in combating the lesions due to this organism.

I believe that the bronchopneumonia in these cases was due to a secondary infection of the respiratory tract by the streptococcus pyogenes, the tissue of the bronchi and lungs being especially susceptible to such infection because of the infecting agent of measles, and that the great mortality was without doubt due to the peculiarly favorable condition of the tissues to such infection.

### PATHOLOGY.

The lesions of this disease first appear in the bronchi and bronchioles, being quickly followed by the appearance of a peribronchial pneumonia involving the air vesicles in the immediate vicinity of the bronchus. This peculiar distribution of the lesions gives rise to the involvement of lobules instead of lobes, as in croupous pneumonia, and while in a very few cases the distribution of the lesions may become lobar, in all the cases observed during this epidemic the distribution was lobular. In describing the macroscopic appearance of the lesions in the lung, I have used the terms red and gray splenization because in every case there was present the typical lesions which are ascribed to these two stages of the disease. I do not believe that it is possible in this disease, as it is in lobar pneumonia, to separate it into distinct stages, as the lesions found differ so widely in different portions of the affected tissue. While macroscopically such a distinction often can be made, when sections of the lung are studied, it will invariably be found that it is impossible to separate the lesions into these stages with any degree of accuracy. In describing the pathology I shall only speak of the pathology of the lungs, including the pleura, the kidneys, the liver, and the spleen, as it was in these organs that the most characteristic changes occurred. In order to give an idea of the macroscopic appearances noted in the pleural cavity and in the lungs, the portions of the autopsy records describing them are here inserted.

Case 1.—The right pleural cavity is filled with pus; the left pleural cavity is free from fluid. The right lung is partially collapsed, and the pleura is greatly thickened and covered with lymph. The lobes of the lung are adherent to one another by recent adhesions. The organ is not crepitant except at the upper lobe. Externally the lower lobe shows a marked atelectasis. On section of this lobe, condition present is that of bronchopneumonia in the stage of red splenization. A large abscess cavity measuring 2 cm. in diameter and filled with greenish pus is found at the lower border of this lobe. There are no other abscesses in any portion of the lobe. On section of the middle and upper lobes, condition present is that of bronchopneumonia in the stage of gray splenization. A small abscess cavity is present in the middle lobe measuring about ½ cm. in diameter and filled with rather thick fluid. The quantity of pus in the right pleural cavity is 1,600 c.c.

Case 2.—The right pleural cavity is filled with pus. The lung shows a marked atelectasis, large portions being collapsed. The pleura is greatly thickened and covered with lymph and the lobes are adherent one to another by recent adhesions. The lung is not crepitant. On section, the cut surface is greyish-red in color, the bronchi being very prominent and filled with pus. The appearance is that of bronchopneumonia in the stage of red splenization. There are no abscesses present. The left lung appears fairly normal except the lower lobe, which shows marked atelectasis and is not crepitant. On section of this lobe, the condition present is similar to that in the right lung. There is no evidence of abscess formation.

Case 3.—The right pleural cavity is filled with grayish pus. The lung is collapsed and the pleura is greatly thickened and covered with lymph. Crepitation is absent, and on section the lung is found filled with abscesses varying in size from those hardly visible to the eye to one measuring 10 cm. in diameter. These abscesses are filled with greenish pus. A large abscess is found at the lower portion of the lower lobe, measuring 10 cm. in diameter. Another measuring 2 cm. in diameter is situated at the junction of the lower and upper lobe; and another 4 cm. in diameter, involves the lower portion of the upper lobe. Beside these larger abscesses there are numerous abscesses present throughout all the lobes measuring from .25 to .5 cm. in diameter. The left pleural cavity is free from fluid, and the lung crepitant throughout. There is some evidence of atelectasis in the lower lobe, and on section of this lobe the condition present is found to be that of bronchopneumonia in the stage of red splenization.

Case 4.—The right pleural cavity is filled with a purulent fluid. The right lung is collapsed and the pleura greatly thickened and covered with lymph. On section of this lung cut surface is rather pale in color and the bronchi are filled with pus. There are numerous minute abscesses scattered throughout the organ, measuring about .25 cm. in diameter. The left lung appears normal.

Case 5.—The right pleural cavity is filled with pus. The left pleural cavity is free from fluid. The pleura is greatly thickened. The lower lobe of right lung is of almost solid consistence, as is lower portion of the upper lobe. On section of the lower lobe, the cut surface is dusky red in color and streaked with pus, which oozes in large quantities from the bronchi. There are numerous areas of commencing abscess formation and a few well-defined abscesses. On section of the upper lobe, there is no evidence of abscess formation, but the lower portion of this lobe shows marked bronchopneumonia. The left lung appears normal.

Case 6.—The left pleural cavity is filled with pus. The right pleural cavity is free from fluid. The left lung is adherent over the apex to the chest wall by old adhesions. The lower lobe of the lung shows considerable atelectasis, but is crepitant. On section of this lobe, condition present is that of bronchopneumonia in the stage of red splenization. The bronchi are filled with pus and there are a few small abscesses scattered through the lobe. The right lung is crepitant, save in the lower portion of the lower lobe, which on section shows a condition of bronchopneumonia.

Case 7.—The left pleural cavity is filled with pus, the right pleural cavity being free from fluid. The pleura, especially over the lower lobe of the left lung, is greatly thickened. The upper lobe of this lung is partially collapsed. The lower lobe is not crepitant and there are numerous firm tubercular feeling areas present at the lower portion of this lobe. On section of the lower lobe of the left lung numerous small abscesses are found filled with greenish yellow pus. The remainder of the lung tissue shows a condition of bronchopneumonia in the stage of red splenization. On section of the upper lobe, there is a marked atelectasis, but no evidence of very severe inflammation. The right lung is normal, save at the lower portion of the lower lobe, which shows a condition of bronchopneumonia, but there is no abscess formation.

Case 8.—The left pleural cavity is filled with fluid, which is just becoming purulent. The right pleural cavity is free from fluid. The lower lobe of the left lung is of almost solid consistence. The upper lobe is crepitant in places, and in other places there is a marked atelectasis. The pleura over the lower lobe is very greatly thickened and inflamed. On section of this lobe, the cut surface is seen to be very dark red in color. The condition present is typical of bronchopneumonia. There are numerous irregular yellow areas present marking the site of small abscesses, the largest abscess found measuring 1.5 cm. in diameter. These abscesses are filled with greenish pus. The upper lobe of this lung appears normal, save for slight congestion. The lower lobe of the right lung is involved, the condition present on section being that of bronchopneumonia in stage of red splenization.

Case 9.—The pleural cavities are free from fluid. The left lung is markedly congested externally. The pleura does not appear to be thickened, but there is considerable atelectasis present. On section, the cut surface presents typical appearance of bronchopneumonia. The remainder of this lung appears normal. The right lung is normal in appearance.

Case 10.—*Clinical Findings.*—This case is of great interest, as beside the lung condition present this patient developed metastatic abscesses in the subcutaneous tissues throughout the body. An abscess was found lying beneath the clavicle, measuring 6 cm. in diameter and filled with greenish pus. This abscess did not involve the shoulder joint. but was situated in the muscular tissue. Another abscess was opened measuring 8 cm. in diameter lying in the subcutaneous tissue behind the scapula. A large abscess was opened in the psoas region, which contained nearly 500 c.c. of greenish pus. The entire subcutaneous tissue in the lower portion of the lumbar region and the upper portion of the gluteal was infiltrated with pus, and several abscesses were also present in the subcutaneous tissue of the thigh and leg.

*Autopsy Findings.*—The right pleural cavity is filled with pus, the left pleural cavity being free from fluid. The right lung is not crepitant and shows an extreme degree of atelectasis. The pleura is greatly thickened and covered with lymph. The lobes are adherent to one another by recent adhesions. On section of the lower lobe of this lung, the cut surface is seen to be very dark mahogany red in color; the bronchi are filled with pus. The condition present is that of unresolved bronchopneumonia. On section of the lower portion of the upper lobe, the condition present is similar to that of the lower lobe. An abscess is opened, which is about one cm. in diameter and filled with greenish pus. On section of upper lobe, upper portion, the condition present is normal. The left lung appears normal.

### THE LUNGS.

One of the most interesting characteristics of this epidemic of bronchopneumonia was the almost constant occurrence of empyema. Of the 10 fatal cases. 9 presented this condition. and in only one case was the fluid semipurulent in character. in the others the material present being rather thick pus. All authorities state that pleurisy and empyema in bronchopneumonia following measles are very rare. Thus Williams states that pleurisy with effusion is a very rare condition. Aufrecht, in his extensive article on bronchopneumonia,[1] does not mention the occurrence of this condition at all, while von Jurgensen states that effusions into the pleural cavity are not often observed in connection with bronchopneumonia, no matter in what way the latter may arise, and that the pneumonia in measles furnishes no exception to this general rule. He also states: "In my opinion, the occurrence at all of a pleuritic effusion during or following measles is a matter of chance."

The constant occurrence of empyema in these cases well illustrates the extreme severity of the infection, the quantity of pus present varying between 500 to 2,000 c.c., the average amount being 1,200 c.c. Five of the cases presented empyema on the left side and four on the right, only one case showing no pus in the pleural cavity. The pus was invariably of a greenish-yellow color, and of considerable consistence. The pleura was greatly thickened, especially over the lower lobes of the lungs, and covered with greenish-yellow lymph, which in some places had partly organized, binding the lobes together. On removal of this lymph the pleura presented a dark purple color, and numerous atelectatic areas were visible beneath it, in some places causing slight contractions of the pleura. The average thickness of the pleura was about .16 cm.

*Macroscopic Appearance.*—Externally the lung where empyema had developed presented the appearance which has just been described. Where empyema had not developed the lung externally was of a reddish-purple color and there was always present marked evidence of atelectasis. The areas of the lung showing this condition were greatly inflamed and collapsed. On incision the cut surface of the lung varied in appearance according to the stage of the infection. In those cases in which death occurred within three days the condition present was always that of red splenization. The bronchi were distinctly visible and presented the following structure: The cavity of the bronchus was filled with greenish-yellow pus, the walls standing out as dark reddish-purple areas surrounding this accumulation of purulent material. The surrounding peribronchial tissue presented a bright red appearance, the pneumonic condition being most marked in this situation.

In cases in which the pneumonic process had lasted for a longer time the cut surface of the lung did not present so many evidences of acute inflammation, the color being reddish-gray or grayish, and it was in these cases that abscess formation was most common. The bronchi invariably were filled with pus and the surrounding tissue was more or less inflamed. The areas showing atelectasis, which were especially frequent in those cases in which death had occurred within three days of infection, were distinctly outlined, due to the intense inflammation present.

*Abscess formation:* I have already spoken of the curious frequency with which empyema complicated bronchopneumonia in these cases, and shall now consider the most important complication observed, namely, abscess formation. which was metastatic in character. The occurrence of abscesses following bronchopneumonia is so rare that many authorities have denied that such a condition is possible. Aufrecht states: "No less doubtful is the appearance of abscesses in catarrhal pneumonia. They are confounded with collections of pus inside the bronchial lumen, which are not infrequently found; and if the bronchus undergoes saccular dilatation may assume a spherical form." Real abscess arising from destruction of the pulmonary tissue Damaschino had already declared to be exceedingly rare.

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[1] Nothnagel's Encyclopedia of Medicine.

This statement, coming from so high an authority, illustrates the *extreme rarity of abscess formation in the ordinary epidemics of bronchopneumonia,* but this epidemic was characterized by the almost invariable appearance of multiple abscesses of the lung of the fatal cases, which could by no chance be confused with collections of pus in the bronchi. As will be seen from the autopsy excerpts, abscesses were present, varying in number from one to twenty or more, and in size from those just visible to the eye to those measuring 6, 8 or 10 cm. in diameter. The smaller abscesses were not well defined as regards an abscess wall and were irregular in shape. The contents did not consist of pus, but of necrotic lung tissue of a semi-fluid consistency. The larger abscesses had a well-defined wall and were filled with a thick greenish-yellow pus. Only one of the cases showed no abscess formation. The abscesses in most cases were situated in the lower lobe of the involved lung.

In one case a large abscess was opened in the upper lobe. Beside the distinct abscesses present in this case there were numerous irregular areas in which the lung tissue was necrotic for a considerable space, and so soft as to be of almost fluid consistency. These areas were no doubt gangrenous in character. The abscess invariably occurred where the atelectasis was most marked. In three of the cases abscess formation was so extensive that the cut section of the lung appeared to be entirely covered with pus, and it was only by removing it that the several abscesses present could be distinguished. In other words, the lower lobes of these lungs had been almost entirely destroyed by abscess formation. In those cases in which death occurred after the fifth day the cut section of the lung was generally of a grayish color and there were small areas present, standing out distinctly because of their light color. These gray areas are no doubt explained by the cutting off of the blood supply to the affected air vesicles, and the consequent softening and necrosis of the cellular elements.

*Microscopic Appearance.*—In considering the microscopic pathology of the lung in these cases the following structures have to be taken into account: The bronchi, the air vesicles, the blood vessels, the connective tissue and the pleura.

The Bronchi: In all microscopic sections it was found that the bronchioles and the smaller bronchi were occluded by material consisting of leucocytes, blood corpuscles, and more or less necrotic material, unrecognizable as regards structure. This occlusion of the bronchioles was evidently produced by inflammation of the bronchial walls, leading to a proliferation of the columnar epithelium lining them and to the exudation of serum into the bronchial canal. The sections showed an extension of this inflammatory condition into the muscular tissue and the infiltration of this tissue by large numbers of leucocytes. Where the inflammatory process had gone no farther this was the only noticeable change in the bronchioles. In the majority of cases, however, the inflammation had extended to the peribronchial tissue, involving the air vesicles surrounding the bronchioles. In every case properly stained, immense numbers of streptococci could be observed in the exudation within the bronchioles, and in those cases in which pneumococci were obtained by culture, these organisms also were present in this situation. The blood vessels in the vicinity of the bronchi were invariably engorged, in many places they were entirely occluded by plugs consisting of red blood corpuscles, lymphoid cells and leucocytes. In every case examined rupture of the smaller capillaries had occurred, and hemorrhagic areas were formed, filled with red blood cells.

Air Vesicles: The sections showed that the air vesicles in the immediate vicinity of the bronchi—that is, in the peribronchial region—were first involved. The surrounding capillaries were entirely filled with blood and were greatly distended; in some places so much so that rupture had occurred, resulting in the destruction of numerous air vesicles which were replaced by great collections of red blood corpuscles, lymphoid cells and leucocytes.

Where rupture had not occurred, however, the air vesicles were distinctly outlined by these congested capillaries. In the immediate vicinity of the bronchi the outline of the air vesicles was lost; this was due, probably, to the extension and accumulation of cellular material similar to that contained within the air vesicles. Where the air vesicles were distinctly outlined they seemed in the early stages of the process to be entirely filled with a cellular exudate composed of the epithelium lining the air vesicles; numerous leucocytes and a few red blood corpuscles which had penetrated the surrounding capillaries. As the process extended, this cellular exudation was so great that in places rupture of the walls of the air vesicles occurred, and large areas of the lung tissue were composed of this material alone. Beside the cells which I have mentioned as occurring in the air vesicles there occurred two peculiar forms of cells, one resembling the giant cell in structure, being irregular in shape and containing several nuclei. These, however, were not giant cells, but were produced by the destruction of numerous cells which became merged in each other, thus giving the giant-cell appearance. The other peculiar cell noticed was mononuclear in character and filled with pigment. This pigment occurred in the form of minute granules or slender rods of a brownish-yellow color, and in many instances almost filled the cell. These pigment cells were especially numerous in the peribronchial tissue, as were also the giant cells. The cells lying within the air vesicles were undergonig various forms of degeneration, the most common being a vesicular swelling of the nucleus. In fact, this form of degeneration was present in almost every cell lying within the air vesicles. Fatty degeneration of the protoplasm and albuminoid degeneration were almost invariably present. There was also great distortion of the individual cells, and globular cells were especially frequent. The occurrence of mononuclear cells, both large and small, was very characteristic in all the sections. In fact, the vast majority of the cells present in the affected areas were mononuclear in character.

Where atelectasis had occurred the walls of the air vesicles had collapsed and were lying together, and at such places there was always a marked accumulation of small mononuclear and polynuclear cells.

The microscopic examination showed numerous places in which there was marked focal necrosis, evidenced by extensive degeneration of the tissue and by the accumulation of immense numbers of leucocytes, and a large amount of granular necrotic material. These areas no doubt in time would have given rise to abscesses, as the structure of the smaller abscesses exactly resembled these areas, save that the necrotic material was greater in amount; the larger abscesses were composed of a well-marked abscess wall, fibrous in character, but always showing a marked infiltration by leucocytes. Numerous streptococci could be demonstrated in the areas of focal necrosis and also in the contents of the smaller abscesses.

The cells lying within the air vesicles, at some distance from the peribronchial tissue, had undergone hyaline degeneration; they presented a homogeneous appearance as the nucleus had entirely disappeared. This form of degeneration is undoubtedly due to the action of the toxic materials.

Blood Vessels: I have already spoken of the intense engorgement of the blood vessels, which include both the larger vessels and the capillaries. In some places this engorgement had been so great that extensive hemorrhages had occurred from the capillaries, producing areas composed entirely of red blood corpuscles and leucocytes. This condition resulted in the destruction of the lung tissue in such areas.

Connective Tissue: The connective tissue was not increased in amount, but rather decreased except where the larger abscesses were situated and around some of the larger blood vessels. In these regions the newly-formed connective tissue was invariably densely infiltrated by young connective tissue cells and leucocytes.

The Pleura: Sections of the lung showing the pleura invariably presented marked thickening of this structure and infiltration by leucocytes and young connective tissue cells. A characteristic and peculiar lesion present was the formation of cystic areas, which were filled with blood and degenerated cellular material, at the junction of the pleura and the lung. These cystic areas were no doubt due to the rupture of capillaries and the consequent collection of the contents of such capillaries in cavities lying between the connective tissue fibers and the pleura. In many sections these cystic cavities were so numerous as to form an almost unbroken chain at the junction of the lung tissue and the pleura. The outer layer of the pleura was invariably found to be covered with necrotic material and in this material streptococci and other bacteria were demonstrated. In all sections of the lung the absence of fibrin was very noticeable, even in those areas where resolution was commencing. It was but seldom that bacteria could be demonstrated in the contents of the air vesicles.

*Summary.*—The pathologic lesions present may be summed up as follows: A marked inflammation of the bronchioles followed by extension to the peribronchial tissue; in many cases the process did not stop here, but extended further into the lung tissue, producing an almost lobar pneumonia, in that nearly the entire lobe was involved. The peculiar lesions found in this epidemic were the occurrence of empyema and abscess formation in the lung.

## LIVER.

*Macroscopic Appearance.*—The liver was invariably enlarged. The capsule was smooth, color of the organ yellowish red and consistence decreased. On section, in every case, fatty degeneration was found present; generally it was of localized extent and was especially marked near the capsule. Congestion of the organ was invariably present. The lobules were indistinct and the cut surface presented a rather cloudy appearance.

*Microscopic Appearance.*—The examination of sections of the liver showed a condition of fatty degeneration and acute venous congestion. The capsule was not thickened, but the connective tissue in the portal spaces was increased slightly in amount and was infiltrated by young connective tissue cells, and by mononuclear and polynuclear leucocytes. The capillaries were congested in many places, so much so that rupture had occurred, and large portions of the liver lobules were replaced by red blood corpuscles and leucocytes which had escaped from the ruptured vessels.

A peculiar conditon present was the great accumulation of mononuclear leucocytes in the intralobular capillaries. This condition occurred in every case and was observed in every section of the liver. It was so marked as to resemble the condition found in lymphatic leukemia. The mononuclear cells did not present any evidence of degenerative changes. It is impossible to explain the occurrence of this variety of cell in such great numbers in the liver capillaries, but that it is of some practical significance I can not doubt, as it occurred in every case and in every section which was examined.

In the cases in which fatty degeneration was present the protoplasm of the liver cells was replaced by fat granules and the nucleus had been destroyed or stained poorly. When this form of degeneration was not present various other forms of degeneration were noticed in the liver cells, the most common being the albuminoid and the peculiar forms of hyaline degeneration which I have mentioned as occurring in the cells of the air vesicles. The liver cells were invariably distorted and swollen, and in many marked pigmentary deposits were observed, the pigment being in the form of minute granules or slender rods resembling that which has been described as occurring in the pigment cells in the lung. Many of the liver cells showed an entire destruction of the nucleus and a loss of staining properties.

*Summary.*—The microscopic pathology of the liver may be summed up in marked degenerative changes in the liver cells, great congestion of the capillaries, the occurrence of large numbers of lymphoid cells in the intralobular capillaries, and pigmentary deposits in the protoplasm of the liver cells and areas of focal necrosis.

## THE KIDNEYS.

In every case sections of the kidneys showed the lesions of a very severe hemorrhagic nephritis.

*Macroscopic Appearance.*—In each case the kidney was somewhat enlarged and appeared greatly congested externally. None showed the presence of cystic degeneration, and in all the capsule was not adherent, and the stripped surface was very greatly congested. On section the cut surface in all the cases was intensely congested, but the cortex and pyramids were distinct. The cortex was considerably thickened and the malpighian bodies greatly enlarged, standing out very prominently as bright red dots in the cortex. The intertubular capillaries were engorged, giving the cortex a markedly striated appearance. The pyramids were intensely congested. The mucous membrane of the pelvis in all cases was considerably congested and the pelvis contained more or less urine almost semipurulent in character.

*Microscopic Appearance.*—The connective tissue of the kidney was not increased in amount, and the capillaries, especially the intertubular capillaries, were greatly engorged with blood. A characteristic lesion in all the sections was the presence of immense collections of blood lying between the tubules and in them, these collections being due to the rupture of the over-distended capillaries. In many sections this hemorrhage into the tubules was so marked as to constitute the chief pathologic picture present. The epithelium lining the tubules showed various forms of degeneration, the most common being fatty, albuminoid and hyalin. The cells were distorted in shape and could be seen in all stages of detachment from the basement membrane. Large numbers of granular, epithelial and blood casts were present in the sections, and the hyaline degeneration mentioned was a characteristic lesion occurring in the cells of the tubules and in the glomeruli. These cells stained homogeneously and poorly. No structure could be distinguished, even with the highest power of the microscope, nor could the distinction be made out between the separate cells. Where this condition had occurred in the glomerulus the structure was entirely lost, the capillary tuft appearing as a homogeneous, structureless, faintly staining mass. In many places the tubules were greatly dilated and entirely empty, the entire epithelial lining of the tubule having been destroyed and removed.

The changes in the glomeruli consisted in great congestion of the capillary tuft, in many instances leading to rupture, and the occurrence of hemorrhage, filling the entire glomerular space. Where this condition was not present there was marked proliferation of the epithelium covering the tuft and lining Bowman's capsule, resulting in an entire obliteration of the capsular space. Areas of focal necrosis were observed in the glomeruli and rarely in the tubules and surrounding tissue. In two cases, metastatic abscesses, microscopic in size, were observed, consisting of a collection of necrotic material, mononuclear and polynuclear leucocytes, and bacteria, chiefly streptococci. In the capillaries were observed the same preponderance of mononuclear cells which were so conspicuous in the capillaries in the sections of the liver.

*Summary.*—The pathologic changes in the kidney consist, then, of lesions of a very severe acute nephritis, characterized by the occurrence of hemorrhage into the tubules and glomeruli, and by the occurrence of areas of focal necrosis and hyaline degeneration. A peculiar condition found in the tubules in which the hemorrhage had occurred consisted in the entire destruction of the epithelium lining the tubules and the covering of the basement membrane by a row of red blood corpuscles. In every section this appearance was observed, the kidney tubule appearing to be lined by red blood corpuscles instead of by tubular epithelium.

### THE SPLEEN.

The pathologic lesions in the spleen consisted in acute venous congestion and the crowding of the splenic sinuses with various forms of cells, the most common being mononuclear leucocytes and macrophages.

*Macroscopic Appearance.*—In all the cases the spleen was greatly enlarged, generally being about twice as large as when normal. The capsule was tense and the organ of a dark reddish-purple color externally. The consistence was decreased, and the weight increased. On section the cut surface was dusky red in color, with numerous areas of a dark mahogany color marking the site of hemorrhages into the parenchyma. The malpighian corpuscles were invisible, or very slightly visible as light reddish areas, although microscopically these were found to be considerably enlarged. The substance of the spleen was almost diffluent in character.

*Microscopic Appearance.*—The cells in the splenic sinuses contained a large amount of pigment. The sections showed that the capillaries of the organ were greatly congested, and here again hemorrhages were very frequent, resulting in the production of large hemorrhagic areas replacing the normal splenic tissue. The connective tissue of the spleen was not increased in amount. The malpighian corpuscles were invariably enlarged and contained numerous pigmented cells resembling those found in the lungs and in the liver. The lesions in the spleen were not so characteristic as those found in the other organs, but were typical of an acute septic condition. In three cases small areas of focal necrosis were present in the spleen, resembling those found in the lungs, liver and kidneys.

### FOCAL NECROSIS AND HYALINE DEGENERATION.

On account of the constant appearance of areas of focal necrosis in the lung, liver, kidneys and spleen, a more detailed description of this condition may be of interest. These areas were situated in the lung, in the exudation in the air vesicles, and also involved, in many instances, the capillaries and walls of the vesicles. In the liver they were situated within the lobules and involved the liver cells in the locality affected. In the kidney they were found chiefly in the cortex, involving, in some instances, the tubules alone, and in others both the tubules and the glomeruli, and in still other instances, portions of the glomeruli alone were affected. In the spleen they were found in the malpighian corpuscles, and also involved the splenic sinuses and the cells within them. This condition has been observed in some of the infectious diseases, such as typhoid, tuberculosis, and in forms of poisoning due to chemical agents; in these cases the focal necrosis was undoubtedly due to some toxic material circulating in the blood, as in very few of the areas showing this form of degeneration could any bacteria be demonstrated. The chief pathologic lesions present were degeneration of the nuclei of the cells in the region involved, and the hyaline or granular degeneration of the protoplasm, with loss of distinction of the separate cellular elements. The nuclear changes consisted in the breaking up into a number of particles and granules of the chromatin and dispersion of these chromatin particles throughout the entire affected area. In many instances the nucleus, while it retained its form, had lost its staining properties, due largely to the destruction of the chromatin. The cells in the involved areas were distorted in shape, and where the process had extended still further they were entirely destroyed, all that remained being a mass of granular deposit entangled in some peculiar material resembling fibrin. While these changes were noticeable in the cells of the tissues involved, the most marked change consisted in a great accumulation of leucocytes which infiltrated the mass of necrotic material. Many of these leucocytes showed granular, fatty and hyaline degeneration, some of them being almost entirely destroyed. In none of the areas observed was there any evidence of regeneration of the tissue. Microscopically these areas consisted of a mass of more or less degenerated cellular material derived from the cells normally found in the connective tissue infiltrated by leucocytes, and in a few instances by bacteria, chiefly streptococci. I believe that the cause of this condition was toxic material in the circulating blood, this material probably being present in the form of toxalbumins. The condition also may have been produced in part by thrombosis occurring in the capillaries, thus cutting off from the affected tissue its source of nutrition. Whether these areas of focal necrosis were due to the toxins produced by the streptococci or to poisonous materials produced during the measles infection it would be impossible to say, but I am inclined to believe they were due to the secondary infection by streptococci.

The form of degeneration which I have called hyaline, occurring so frequently in the cellular elements of the lungs, liver, kidney and spleen, consisted in a peculiar degeneration of the protoplasm and nucleus, evidenced by great swelling and distortion of the cell, disappearance of the nucleus, and peculiar staining reactions. Areas showing this form of degeneration stained homogeneously, and the most careful examination did not demonstrate any peculiar structural change except the entire disappearance of the cell. nucleus, and the replacement of the normal protoplasm by a mass of hyaline material without distinct structure. Such areas were clearly mapped out in sections from the areas surrounding them by the fact that they took the stain homogeneously throughout, all trace of distinction between the cells being entirely lost. The name hyaline degeneration is generally applied to a peculiar change occurring in the connective tissues, and it is necessary to differentiate this form of hyaline degeneration from the form widely known as hyaline change.

The form of degeneration occurring in these cases affected the cellular elements as well as the connective tissue in the regions involved. It affected not only the cells in the connective tissue, but the capillaries also, the entire structure of the organ in such regions being lost and replaced by a homogeneous staining mass in which no structure could be recognized. There can be no doubt that this peculiar condition was due to toxic materials circulating in the blood. In all the organs the cellular elements were especially affected and the change was most noticeable in the kidneys, where the cortex showed the process in its greatest severity.

From a summary of the macroscopic and microscopic pathology of the organs from these cases of bronchopneumonia it is evident that the infection was of a septic character, producing very severe and rapidly fatal lesions in the organs mentioned. The peculiar pathologic lesions present were the occurrence of hemorrhages in all the organs, areas of focal necrosis, hyaline degeneration, empyema, and abscess formation in the lungs, kidney and spleen, and the occurrence in the capillaries of the liver and kidney, and in the air vesicles of the lung, of large numbers of lymphoid cells. I believe that it is justifiable, from the lesions present, to conclude that this epidemic of bronchopneumonia complicating measles, and showing such a high mortality, was due to secondary infection of the diseased mucous membrane of the respiratory tract by streptococci, with consequent production of a bronchopneumonia associated with a pyemic infection due to these organisms.

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# *Special Article*

## IMMUNITY.

### CHAPTER XII.

### PRECIPITINS.

Because of their scientific importance and certain practical features the serum-precipitins should receive something more than the incidental mention which has been given them under agglutination and in other chapters.

**Bacterial Precipitins.**

In 1897 Kraus discovered that bouillon cultures of the organisms of typhoid, cholera and plague, from which the bacteria had been removed by filtration, would cause precipitates when mixed with their respective antiserums. The reaction is specific. As stated later, however, this specificity holds only when those quantitative relationships are observed which were found so essential for the agglutination test. The precipitins of Kraus are the bacterial precipitins. He proposed their use for the identification of micro-organisms. If, for example, one has in hand a culture which he suspects to be that of the typhoid bacillus, it may be grown in a liquid medium, the cells removed by filtration, and the filtrate mixed with a known antityphoid serum; if a precipitate occurs when the serum is sufficiently diluted, the reaction indicates that the organism in question is the typhoid bacillus. Inasmuch as precipitins are formed during the course of some infections it may be possible to use them in clinical diagnosis, but for either bacterial or clinical diagnosis the agglutination test is more readily performed and interpreted.

**Phytoprecipitins and Zoöprecipitins.**

In addition to bacterial precipitins we have also to recognize the phytoprecipitins. These are produced by immunization with albuminous substances of plant origin, as ricin and albumin from grains, and their action is specific for the homologous substance. Zoöprecipitins are those which are obtained by immunizing with an albuminous fluid from some animal. Through the work of Wassermann and Uhlenhuth, of Nuttall and others, it has been demonstrated as a general law that immunization with an albumin from whatsoever source gives rise to the formation of a precipitin which manifests its action only against the particular albumin used for the immunization. Hence, the albumin of a particular serum, in some unknown respect, is different from that of all others; it is special to the species.

**Lactoserum.**

Immunization with milk causes the formation of a precipitin which throws down the casein of the milk used for injection, but not that of milk from another species. The milk of the goat may be differentiated from that of the cow by the use of the lactoserum.

Likewise, after the injection of egg-albumin a precipitin is formed which is specific for the type injected.

**Precipitogen, Precipitin and Precipitate.**

Three substances are open to study in the precipitation reaction. First, the fluid or substance which is used for immunization; it bears the name of precipitogen, just as the analogous substance is called agglutinogen, as indicated in the preceding chapter. Second, the specific constituent of the precipitating serum-precipitin. Third, the precipitate, which is a consequence of the reaction between precipitogen and precipitin. We are able to recognize in this instance the actual end-product of a reaction, a condition which is not so easily realized in other "immunity reactions." It is true, of course, that little has been learned concerning the nature of the end-product; its chemistry is as dark as that of the proteids in general.

**Formation of Precipitin.**

As stated in the chapter on "Natural Immunity," some serums normally have the power to cause precipitates in other serums. Precipitins for egg albumin and goat serum have also been found in extracts of organs, although at the same time they were absent from the serum of the animal. In this case the active body exists normally in the cells in the form of sessile receptors, as they have been called, and by the process of extraction they are brought into solution. During immunization these same receptors are stimulated to overproduction and are thrown into the circulation as free precipitin receptors, or serum-precipitin.

The power of forming precipitins may be widely distributed among the organs; the leucocytes apparently have this function, and in one case they were formed locally in the anterior chamber of the eye.

For the artificial production of precipitins the precipitinogenous fluid may be injected into the veins, peritoneal cavity or the subcutaneous tissue. Within from four and a half to five days the precipitin has been formed to such an extent that it may be demonstrated in the serum of the immunized animal.

As in the case of agglutinin formation, not all animals have equally the power of forming a precipitin for a given albumin.

**Concerning Autoprecipitins and Isoprecipitins.**

This point, as related to serum precipitins, is of particular importance, and involves a factor which is of no consequence in agglutinin production. In the first place, an animal will not form a precipitin which is active against its own serum; i. e., by bleeding an animal and reinjecting the serum a specific precipitin is not formed. If formed it woud be an autoprecipitin, and, as a general rule, animals do not form antibodies for their own tissue constituents. Again, animals are unlikely to form antibodies for the issue constituents of other members of the same species; hese, when formed, are called isobodies. Schütze immunized thirty-two rabbits with serum from the rabbit and obtained an isoprecipitin from only two of the number. In the third place, animals do not readily form antibodies for the tissue constituents of other animals which zoölogically or biologically are closely related; immunization of the guinea-pig with the serum of the rabbit, a pigeon with that of a chicken, or a monkey with human serum, are procedures which usually do not yield precipitating serums.

**Nature of Precipitin.**

**Specific Inhibition.**

Chemically, little is known of precipitins. They are thrown down by certain salts in conjunction with the euglobulin fraction of serum, and are destroyed by those substances which alter albuminous bodies, as acids, alkalies, pepsin and trypsin. When the serum is heated to from 50° to 60° C. its ability to cause a precipitate in the homologous precipitogen is destroyed, although it may be demonstrated that the power to combine with the latter is unchanged. Hence precipitin, like agglutinin, is composed of two groups, a binding or haptophorous, and a ferment-like group in which the active property resides; the latter is the coagulin of the molecule. When precipitin has lost its coagulin it becomes precipitoid, and as precipitoid it may unite with precipitogen and thereby may inhibit the action of a fresh precipitin which may be added later. When a precipitating serum has partly degenerated into precipitoids, that is, when it consists of a mixture of precipitin and precipitoid, it is found that the latter have the greater affinity for precipitogen, hence, in concentrated solutions of the serum, precipitoid may be present in sufficient quantity to bind all the available precipitogen and the reaction would not occur in spite of the presence of active precipitin. This is spoken of as specific inhibition. The action is analogous to that of toxoids and agglutinoids, and the phenomenon is mentioned again in this instance in order to emphasize the fact that certain laws of action are common to many of the immune substances however much they may differ in their actual structure and in the nature of the changes they produce in their specific antitypes. Precipitoids, like toxoids and agglutinoids, are formed by long standing, by the action of heat and light and by other injurious influences.

The molecule of precipitin, like that of agglutinin, is a receptor of the second order (Fig. 6).

**Antiprecipitins.**

The attempt has been made to produce antiprecipitins by immunization with precipitating serums; this is immunization with an immune serum. It is reported that antibodies have been obtained for lactoserum, but not for bacterial precipitins. There is a limit to the cycle of antibody formation.

**Nature of Precipitogen.**

Precipitogen may be defined as any albuminous substance immunization with which will cause the formation of a specific precipitating serum. In addition to those mentioned above, albuminous urine, pleural exudates, ascitic fluid and that from hydrocele are precipitogens. The same is true of some albuminous fractions of serums, as globulin; one may speak, in this instance, of antiglobulin. Kraus believes that the precipitogen of bacterial filtrates also is associated with albuminous molecules, but although the tendency is to accept this relationship as general, Jacoby obtained by tryptic digestion of ricin, a precipitogen which gives no albumin reaction. On the other hand, certain precipitogens are destroyed by pepsin and trypsin, a fact which indicates their albuminous nature.

**Precipitoid Derived from Precipitogen.**

A given precipitogen sometimes consists of a portion which is resistant to heat and another which is destroyed at low temperatures. Certain precipitogens, for example egg albumin, when heated to rather high temperatures, lose their ability to participate in the precipitation reaction, although they retain the binding power for precipitin; therefore, precipitogen also consists of a binding group and another group which is similar to the coagulin of the precipitin molecule. In view of the fact that the two substances which enter into the reaction have similar structures it is difficult to say which assumes the passive and which the active rôle. The degenerated precipitogen is also called precipitoid. In order to distinguish the two precipitoids one must speak of the precipitoid of precipitogen, and the precipitoid of precipitin. The precipitoid of precipitogen yields precipitin by immunization; hence it is all the more analogous to the toxoids.

**Precipitate.**

The precipitate which is caused when a bacterial filtrate is mixed with its specific serum forms in from one-half hour to several hours, and appears as a coherent white sediment which in the course of twenty-four hours has left the overlying fluid quite clear. The action of the antiserum precipitins is somewhat more rapid, and in either case sedimentation is hastened by placing the fluids at body temperature. As intimated above, the occurrence of the reaction depends on an intact condition of the coagulin groups of both substances. A low concentration of organic acid favors, whereas mineral acids and alkalies inhibit or prevent precipitation; a neutral reaction is indifferent. The precipitate contains albumin, which, however, has become changed so that it is not susceptible to the action of trypsin. The two in combining have in some way shut off the point of attack for trypsin. In milk, casein is precipitated by the lactoserum. As in agglutination, the presence of salts is necessary for the formation of the precipitate.

**Group Precipitation and Specificity.**

Group precipitation is not so pronounced a feature of precipitins as we found group agglutination to be in connection with agglutinins, yet it exists to a certain degree and is of the utmost practical importance in attempting to differentiate serums by the precipitation method. Although bacterial precipitins are highly specific, it is important to observe the principle of serum dilution which was emphasized under agglutination, in order to obtain the adventitious precipitins in such small amounts that they do not interfere with the chief precipitin.

**Forensic Use of Precipitins.**

That feature of the precipitation reaction which has the most practical bearing has to do with its medicolegal use in the detection of human blood. For this purpose it has supplanted the specific hemolytic serums, which are to be referred to later. In the course of investigations it was found that even the smallest dried blood stain, although months old, when mixed with its homologous precipitating serum, would cause the formation of a sediment. It remained for certain important details to be worked out in order to render the test sufficiently reliable for forensic work. The specificity of the reaction appeared to be threatened somewhat, when it was learned that the serum of monkeys undergoes precipitation when treated by an immune serum which is specific for human serum. This is, again, group precipitation. Adventitious precipitation is, in fact, so widespread that some have felt justified in speaking of a mammalian serum reaction. Hence, in order to insure specificity it has become necessary to use precise quantitative methods in differentiating bloods or serums by this method. The immune serum to be used must be diluted to some extent, for the reason indicated; but even a more important precaution is the volumetric measurement of the precipitate which is formed. The technic of Schur may be cited. Test tubes are so made that the lowermost portion consists of a graduated capillary tube; 1 c.c. of the fluid to be tested is placed in one of these tubes, to which is then added 0.2 c.c. of the precipitating serum. The mixture is kept at body temperature until the reaction is complete, and the sediment is then thrown into the capillary portion of the tube by centrifugation for a stated period of time (twenty minutes). The volume of the sediment may be read by the scale. Nuttall allows the sedimentation to occur naturally, with the tubes in an upright position. Other serums naturally must be used as controls. If the "unknown" blood is suspected of being human, a control tube must be prepared in which a similar amount of known human serum is submitted to the same test. If the two tubes yield similar amounts of precipitate when they are treated with 0.2 c.c. of a precipitin for human serum, the identity of the "unknown" blood as that of man is established. To obtain the specific precipitin it is customary to immunize rabbits with human serum for several weeks.

**Identification of Meats.**

Another practical feature of the precipitation test has to do with the differentiation of meats. A precipitogenous substance which is characteristic for the animal may be extracted or pressed from the tissue, and will yield a precipitate when it is mixed with a precipitin of homologous nature. This is of particular interest in those countries in which the meat of the horse is put on the market as a substitute for that of beef.

The possible relationship of precipitation to bacterial agglutination was referred to in the chapter on "Agglutination."

In connection with precipitation and also agglutination certain work with the so-called colloids may be mentioned briefly.

**Colloids and the Reactions of Immunity.**

In view of the fact that the protoplasm of the body and the albuminous constituents of serum have a close relationship to, or really are, colloids, investigators have studied certain reactions which occur among the known colloids with the expectation that the reactions of protoplasm and those of serums would receive some elucidation.

**Properties of Colloids.**

Substances which go into solution were classified by the English physicist, Graham, as crystalloids and colloids. Crystalloids include many inorganic salts. Usually they form clear solutions in water and exhibit an osmotic pressure, supposedly because of the small size of their molecules. They diffuse with some rapidity and many are conductors of electricity. Organic colloids comprise such substances as albumin, starch, dextrin, tannin, gelatin and many gums. By proper treatment of certain metals and their salts inorganic colloids may be prepared; for example, ferric hydroxid and the sulphids of antimony and arsenic. When colloids are dissolved in water the solutions are often more or less opaque, and are sometimes opalescent because the particles or molecules are of such size that they polarize light. They exist in water either as a solution of molecules of great size or as a suspension of considerable particles or aggregates of molecules. In some instances the particles are so large that they may be seen by a magnification of 1,000 diameters, while in others no degree of magnification renders them visible with the ordinary microscope. By the use of the recently devised ultramicroscope, however, the finest particles in some colloidal solutions may be discerned. Colloidal substances, such as albumin, diffuse very slowly and exert little or no osmotic pressure, supposedly because of the large size of the particles. They do not conduct electricity, but the particles themselves react to the electric current by alterations in the direction of their motion (i. e., toward the positive or the negative pole), and moreover carry electric charges themselves.

**Precipitation of Colloids by Electrolytes.**

The features of colloids which bring them into relation with the subject in hand are their coagulable nature in certain instances and the fact that their particles may be agglutinated or precipitated by the addition of minute amounts of salts (electrolytes). In this connection one naturally recurs to the observation of Bordet, which was mentioned in the preceding chapter, concerning the inagglutinability of micro-organisms so long as salt is withheld from the solution. This analogy would suggest that the bacteria after their union with agglutinin may conduct themselves as colloidal particles. When colloids are precipitated by salts, it is thought that they so alter the electric condition of the particles that the surface tension is decreased, and as a result of this change neighboring particles coalesce in such quantities as to produce a visible sediment.

Neisser and Friedberger have studied certain colloids, having in mind the similarity of their behavior to serum reactions. They found, for example, that two of our common dyes which are colloids and bear opposite charges of electricity (eosin and Bismarck brown), give rise to a precipitate when the two are mixed. Furthermore, the specific inhibition which may be obtained in the reaction with serum precipitins (see above) could also be realized with the eosin and Bismarck brown.

The agglutination of bacteria and of red blood cells may also be accomplished with colloids. Landsteiner agglutinated erythrocytes with colloidal silicic acid.

The facts which have been cited, and others which have appeared in recent literature, assume all the more significance when we bear in mind the colloidal nature of the albuminous portion of serum with which the "immune bodies" are so closely associated.

*(To be continued.)*

# Clinical Reports

## AN UNUSUAL CASE OF ANEMIA.*

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AND

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SAN FRANCISCO.

*Patient.*—F. J., aged 36, native of Germany, by occupation a teamster, entered St. Luke's Hospital Sept. 21, 1903.

*History.*—Family history unimportant. He drank to excess and smoked moderately. Six years ago he dropped a piece of iron on the first and second toes of the right foot, which accident was followed by "blood poisoning." Three years ago his right eye was destroyed by a shot. About two months ago he had a severe cold and a nosebleed, which lasted two and one-half hours; he lost a great deal of blood. Since then has felt weak and faint. He had nosebleed once since, but not so severely. Bowels were constipated.

*Examination.*—Patient was fairly well developed and nourished. Face was pale with dilated capillaries. Right eye was artificial; left reacted normally. Tongue was pale, flabby and tremulous. Lips were pale. Chest was fairly well developed. Heart dullness extended 2 cm. to the left of mammary line; sounds rather weak; first sound at mitral area impure, second pulmonic accentuated. A systolic murmur was heard over pulmonic area, and heard also very faintly over aortic area, and transmitted to vessels of the neck. In the lungs nothing abnormal was found. Liver and splenic dullness were normal and abdomen was not distended. Right leg and foot edematous, and discolored in small areas or patches, almost to the knee. A large gangrenous-looking ulcer was situated on the outer aspect of the lower third of the right leg, about 7 by 10 cm. in area; the ulcer had a slight odor. This ulcer had been present about a year. Temperature 100 F., pulse 96, regular; right pulse small; left could hardly be felt; respiration 24.

Urine: 56 ounces, pale, alkaline, cloudy. The specific gravity was 1,014, and the urine contained triple phosphate crystals and amorphous urates.

Blood examination: Red cells, 1,150,000; hemoglobin, 30 per cent.; leucocytes, 7,300; differential: polymorphonuclears, 6 per cent.; small lymphocytes, 91 per cent.; large lymphocytes, 2 per cent.; eosinophiles, 1 per cent.: no nucleated red cells; no marked poikilocytosis; no polychromatophilia.

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* Read before the California Academy of Medicine, 1904.

*Later History.*—September 27: About noon there was a hemorrhage from the nose, blood exuding from both nose and mouth. This hemorrhage lasted a considerable time, the patient meanwhile complaining of headache. This was followed the next day by another hemorrhage though not so severe, and again the following day (September 29) there was a prolonged severe hemorrhage. He grew progressively weaker following these hemorrhages, and on the morning of the day before his death he had a chill. His temperature from the time of his admission until September 25 fluctuated from normal to 101, gradually rising to 103 on the night of the 28th, when it slowly fell, reaching 97.4 before his death, which occurred October 1.

September 30: A blood count revealed 770,000 red cells; hemoglobin, as nearly as could be estimated, 10 per cent.; leucocytes, 2,300; polynuclears, 6 per cent.; small lymphocytes, 90 per cent.; large lymphocytes, 4 per cent.; no eosinophiles seen; there were no nucleated reds, but some poikilocytes.

An examination of the stools failed to reveal any evidence of intestinal parasites or ova.

*Treatment.*—Medication consisted in iron and arsenic; also calcium chlorid in dram doses by the rectum, and adrenalin chlorid hypodermically. Mechanical means were also used in the effort to control the hemorrhages.

*Autopsy.*—Two hours after death: Body is that of a medium-sized man. General nutrition is rather good. Postmortem rigidity is almost absent. There is slight lividity over back and buttocks. There are a few small petechial spots in skin of both arms, and larger petechial spot over left clavicle. Femoral glands on both sides are just palpable. No other superficial lymph glands can be made out. Right ankle is somewhat swollen, but does not pit on pressure. There is a large, deep ulceration 6 by 4.5 cm. just above external malleolus posteriorly, and a small superficial ulceration to right of large ulcer, also very small superficial one to left. Edge of deep ulcer shows little induration. Floor of ulcer is covered with pale, dirty-looking sloughy material. Small white scar is on dorsal surface of left hand, and old white scar 2.5 by 1 cm. below patella on outer surface of leg. There is a large scar on anterior surface, upper third of thigh 6.5 by 4 cm.

Abdomen: Subcutaneous fatty layer, average 1.2 cm. Peritoneum pale, smooth, shiny, no fluid. Liver 2.5 cm. below costal margin. Spleen, 11.5 by 5 by 2.2 cm.; weight, 108 gms. Capsule slightly thickened; consistency firmer than normal; rather pale. Adrenals, both sides normal. Left kidney, 11.5 by 5.8 by 4 cm.; weight, 166 gms. Remains of fetal lobulations seen; very pale; capsule adherent in a few small areas; kidney markings distinct, about normal. Right kidney, 11 by 5.8 by 4 cm.; weight, 161 gms.; capsule adherent over a few small areas; cortex contracted at these places. Bladder distended, containing about 500 c.c. of urine; appears normal. Prostate normal. Liver, 27.2 by 17.8 by 7.5 cm.; weight, 1,830 gms.: very pale, yellowish brown color. Diaphragm, fourth rib, right side: fourth interspace, left side. Omentum well supplied with fat. Gall-bladder duct patulous, contains about 150 c.c. dark greenish bile. Stomach contains about 300 c.c. of well-digested material. A number of small cyanotic areas about 5 mm. in diameter scattered over surface of stomach. Some postmortem digestion. Intestines pale, otherwise apparently normal. Lymph glands along inferior vena cava vary in size from the size of a millet seed to that of a shelled almond. Some glands enlarged also along right iliac vein.

Heart: Weight, 304 gms.; muscle, pale brownish color, rather flaccid consistency. Aorta: Circumference highest part of arch, 5.6 cm.; a number of small yellow patches seen on intima.

Liver: Moderate amount of fat, mostly in periphery of lobules; a small amount of brown pigment in some of liver cells; this pigment gives the iron reaction.

Pleura: No fluid on either side; no adhesions; pleura pale, glistening.

Left lung, 22.2 by 5.5 by 3.8 cm.; marked anthracosis; otherwise normal. Right lung, 19 by 10.5 by 4 cm.; marked anthracosis.

Peribronchial lymph glands: A few enlarged to about the size of a shelled almond; anthracosis and induration.

*Microscopic Examination.*—Heart: Small amount of brown pigment in some of the muscle cells.

Spleen: Slight thickening of capsule; some brown pigment in a number of the cells of the spleen pulp.

Lung: Marked anthracosis.

Adrenals: Normal.

Kidneys: Considerable increase in interstitial connective tissue in the small areas over which capsule was adherent; otherwise normal.

Ulcer of leg: Floor of ulcer is formed by young connective tissue with hyperemic veins; some infiltration with lymphocytes; small amount of necrotic material on surface of floor of ulcer; practically no arteritis of surrounding arteries.

Stomach: Small cyanotic areas show hyperemia and a considerable exudation of fluid rich in fibrin into the submucosa. Mucous membrane of stomach shows some atrophy.

Large intestines: Mucous membrane shows considerable atrophy.

Peribronchial lymph glands: Most of gland tissue replaced by fibrous tissue showing heavy coal pigmentation; the small portion of lymphoid tissue which remains shows a brown pigment in many of the cells.

Pancreas, adrenals, prostate, bladder, esophagus and small intestines normal.

Glands from inferior vena cava: Sinuses are much dilated and contain a large quantity of blood, also a number of cells that look like swollen lymphocytes containing brown pigment; the lymphoid tissue of the glands shows many swollen cells containing brown blood pigment. Also some pigment outside of the cells; this part of the gland is very hyperemic.

Piece of bone taken from skull shows fatty marrow with very few cells; no change to the lymphoid type, or the red type of marrow.

Brain: A few small hemorrhages beneath arachnoid; one anterior to fissure of Rolando along longitudinal sinus; one small hemorrhage over left parietal lobe.

*Bacteriologic Examination.*—Cultures were made from the following organs and incubated both under aërobic and anaërobic conditions. No growth was obtained from the following: Brain membranes, brain substance, pericardium, right ventricle, liver, peritoneum, right pleura, left pleura, right lung, left lung, left kidney. A number of colonies of colon bacilli were obtained from the spleen and from the right kidney.

Smears from ulcer showed a number of capsulated bacilli, rounded at ends, and varying in size; they were non-motile and negative to Gram's stain. Plate cultures developed two classes of colonies, one a *Bacillus mucosus capsulatus*, the colonies being of a creamy, gelatinous consistency, producing a luxuriant, creamy growth on potato; milk litmus acidified; glucose agar not fermented. A guinea-pig injected peritoneally died within twenty-four hours; same capsulated bacillus recovered from all the organs. The other class of colonies may be described as follows: A very opaque, creamy colony on agar agar; edge of colony irregular; potato, a very heavy luxuriant creamy growth; milk, litmus and glucose bouillon unchanged; gelatin not liquefied. Smears show a short, very coarse, almost coccus-like bacillus, which is not pathogenic for guinea-pigs.

*Remarks.*—This anomalous case presented several perplexing difficulties regarding its classification. The character of the onset and the relative lymphocytosis suggested acute lymphatic leukemia. True, there was no leucocytosis at the time the patient entered the hospital or subsequent thereto, but the leucocyte count is so easily influenced by intercurrent infections and other causes, such as certain drugs, that the absence of leucocytosis was not sufficient cause for ruling this out. Cabot[1] cites a case complicated by suppurating cervical glands, with a rapid decrease of the leucocytes subsequent to sepsis, the patient dying with a marked leucopenia, the leucocytes numbering 471 on the day of his death. Numerous other instances of rapid decrease of the leucocytes are cited by the above-named authority and by others; Dock,[2] having recently reported several such phenomena, one in which influenza supervened, being followed by a reduction of leucocytes from 367,000 to 5,000. In a patient suffering from myelogenous leukemia whom I have had under my care for over a year, and whose leucocytes had never been under 70,000, they recently dropped suddenly to 7,000 following pregnancy. I am not sure that this decrease was due to her pregnancy; I merely cite the coincidence. Among the various causes to which the decrease is ascribed, I have not seen pregnancy mentioned in the literature.[3]

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[1] Cabot: Clinical Examination of the Blood, 4th ed.

The lymphocytosis of acute lymphatic leukemia is usually of the large-cell variety, whereas in the case here reported there was a preponderance of the small lymphocytes. I do not believe that acute or chronic lymphatic leukemia can be differentiated solely by the blood picture. It is difficult to draw arbitrary lines. The personal equation enters largely into the distinction between large and small lymphocytes. Indeed, with the more modern conception of hemogenesis, we must reclassify our large lymphocytes, and recognize, with Pappenheim and others, a lymphoid cell with special morphologic and staining characteristics by which it can be differentiated from the large mononuclear lymphocytes. Fraenkel calls attention to the identical blood picture in some cases of both the acute and chronic forms of the disease, and admits that a chronic case may take on the acute form. The literature cites several instances of preponderance of the small cell. Rosenberger[4] last month reported a case of the acute form, with small lymphocytes ranging from 22 per cent. to 92 per cent., though always in excess of the large cell; and also mentioned several other cases culled from the literature. Churchill of Chicago, at the same time, reported 15 cases of acute leukemia in early life, in 12 of which the small lymphocyte predominated. Reed[5] reported, in 1902, a case running an acute course, in which the small cell was in excess, where there were no evidences of involvement of either spleen or lymph glands, but where the examination of the bone marrow "proved conclusively that the lymphocytosis arose from proliferation of the lymphoid cells in the bone marrow, and death occurred before any other organ in the body showed involvement." Of course this conception of the origin of lymphocytes is diametrically opposed to the theory of Ehrlich, who taught that lymphocytes were derived exclusively from the lymph glands; but the new theory that the bone marrow contains lymphoid elements, is supported by most recent investigators, and such claim is very largely substantiated by the existence of the above cited case, and many others, where there was no involvement of the lymph glands. I have elsewhere stated my belief in the existence of a close relationship between the myelogeneous and lymphatic forms of the disease with a common pathologic basis in the bone marrow.[6] It is unfortunate that in this case we are unable to present satisfactory data concerning the condition of the bone marrow, for without this a doubt exists regarding its leukemic nature.

The intense anemia, the moderately high color index and the marked leucopenia just before death, were suggestive of pernicious anemia. A very careful search failed to reveal any nucleated erythrocytes during the life of the patient, and only recently two megaloblasts were found from preserved smears in counting over 1,400 leucocytes. This represents a search of more than half a cubic millimeter of blood, for it will be remembered his leucocyte count was 2,300 the day before his death. I believe the absence of nucleated red cells in severe cases of pernicious anemia can be satisfactorily explained on the ground that the intense hemolysis does not permit of the compensatory lymphoid and megaloblastic changes in the bone marrow, which changes "do not form an essential part of the pathology of pernicious anemia." Cabot calls attention to such cases under the term "aplastic anemia," the bone marrow being hypoplastic and incapable of responding to the demand for increased red cell formation, made necessary by the tremendous hemolysis. Lipowski[7] reports such a case in which an escharotic poison, taken with suicidal intent, was the cause of a hemolysis, which brought the red cells down to 2,115,000 and the hemoglobin to 18 per cent. Muir[8] reported a case of "purpura," with a similar onset and clinical history to the one under consideration, in which the red cells were reduced to 640,000, the hemoglobin to 12 per cent., with an intense leucopenia. In neither of these cases were nucleated red cells present, and in both the relative number of lymphocytes was much in excess. Dr. P. K. Brown at a meeting of this body recently reported a case of a child with a similar blood picture. If we accept the statement that the bone marrow changes form no essential part of the pathology of pernicious anemia, but are compensatory in their nature, and if, in cases where the hemolysis is intense, the compensatory activity of the blood-forming tissue in the bone marrow can not assert itself, then I do not believe there is sufficient justification for placing these severe cases of pernicious anemia in a class by themselves.

The autopsy findings were suggestive of pernicious anemia, and this is particularly noticeable in the hemolymph glands. To Warthin[9] of Ann Arbor we are indebted for much of our knowledge regarding the importance of these organs in hemolysis. He found in a series of eight cases of pernicious anemia, enlargement of these organs in most of them, together with dilation of the blood sinuses, and increase of phagocytes containing disintegrating red cells and pigment. It has elsewhere been shown that these bodies have normally a hemolytic function, the difference in their function in pernicious anemia being one of degree only. It is remarkable that most textbooks on the pathology of this disease are either silent regarding the condition of the lymph glands, or state that they are normal in this disease. In the case here reported these glands were enlarged, the sinuses were much dilated, and contained a large quantity of blood, also a number of cells which looked like swollen lymphocytes containing pigment. These large cells were also present in the lymphoid tissue of the glands.

While this report is somewhat incomplete in that the bone marrow was not thoroughly studied, and the spinal cord was not removed and examined for the changes usually found in the dorsal columns in cases of pernicious anemia, I believe that with the evidence herewith presented, this case must be placed in the category of pernicious anemias.

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[2] Dock: Amer. Jour. Med. Sciences, April, 1904.

[3] In the case of pregnancy here referred to the uterus was emptied of its contents by dilatation and curettement, which was followed by a gradual increase in the number of leucocytes, and at the present time of writing, nine weeks after pregnancy was terminated, they numbered 44,000. There has been, however, a relative decrease in the number of myelocytes.

[4] Rosenburger: Amer. Jour. Med. Sciences, October, 1904.

[5] Reed: Amer. Jour. Med. Sciences, 1902.

[6] American Med., Aug. 13, 1904.

[7] Lipowski: Deut. med. Woch., 1900.

[8] Muir: British Med. Jour., Sept. 29, 1900.

[9] Warthin: Amer. Jour. Med. Sciences, 1902, August, 1904.

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# A POINT IN TREATMENT OF FRACTURED LOWER JAW.

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A 6-year-old boy fractured the neck of the lower jaw on one side. To make a diagnosis it was necessary to give an anesthetic. The boy had just eaten his dinner, so the anesthesia was put off three hours. After the dressing was completed vomiting occurred, emptying the stomach of the boy's meal. The food had become liquefied, however, and no damage came to the boy, because he succeeded in stretching the dressings sufficiently to let the mouth open.

The query is, what would have happened if the dressings had not stretched, and particularly if the anesthetic had been administered as soon as the accident occurred?

It would seem that a child under those circumstances would surely suffocate.

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## APPENDICITIS AND THE PUERPERIUM.

A subject of perennial interest is the origin of the infections which so often prove fatal after childbirth. At one time there was a universal impression that puerperal fever had its source in the patient. Then, as the result of an accumulation of evidence, there came the definite conclusion that the infectious material was usually introduced from without and was due either to the carelessness of the physician or of the midwife in attendance, or to some mistake by the nurse or by the patient herself. In this, as in most things in medicine, it seems not unlikely that the pendulum of opinion swung too far and that there is about to be differentiated a series of cases in which the origin of the infectious material will be found, as was formerly thought, within the patient's tissues.

One thing is very clear, micro-organisms of various kinds, under certain circumstances, may become so walled off as to be rendered innocuous and yet retain their vitality within the tissues for many years. This has been demonstrated with absolute certainty in such diseases as tuberculosis and typhoid fever, and it is no longer a matter of surprise to find that an abscess in bone developing many years after an attack of typhoid fever may yet contain the typhoid bacillus in pure culture. In the same way, it seems not unlikely that certain intra-abdominal conditions, after being for the moment acute, may become so walled off as to be a source of no further immediate danger and yet the micro-organisms present may retain their vitality. Acute oöphoritis, for example, may cause a protective reaction sufficient effectually to occlude the infected part from surrounding tissues, and, in the same way, an appendicitis that has gone beyond the catarrhal stage may lead to the formation of adhesions that effectually protect the peritoneum.

In both cases, however, virulent micro-organisms remain, and it is easy to understand that during the serious intra-abdominal disturbance consequent on the enlargement of the uterus during the puerperium and then its rapid evacuation and firm contraction immediately after labor, the adhesions formed may be so disturbed as to permit the escape of such micro-organisms into the tissues. In not a few cases of puerperal fever it is noted that there are no signs of infection in the vagina itself or in the uterus. In such cases, also, local treatment of the external genital tract does not produce any material modification of the symptoms. Instead, then, of considering that the infection in such cases must necessarily be from the exterior, it seems much more justifiable to trace it to some internal source. Under such circumstances, a careful history of the patient may disclose the occurrence of attacks of appendicitis or of oöphoritis that would give a clue to the origin of the infectious material that is now producing the septic process.

Such considerations are valuable, not only as helping to solve an important problem in etiology, but also because of the indications which they furnish for treatment in cases that are otherwise so hopeless. When there is a history of any previous symptoms of appendicitis, an exploratory operation, undertaken not long after the first symptoms of fever are noted, might prove life saving by furnishing the opportunity for the evacuation of the infectious material that was finding its way into the tissues. Indeed, whenever the genital tract does not furnish any evidence of infection having taken place from without, a very careful investigation of all the antecedents of the patient should be made in order to determine whether there may not be some hopeful indication for surgical interference for other conditions. Besides appendicitis, a history of a previous abdominal operation that may have been followed by the formation of adhesions between the intestinal and the genital tracts must not be forgotten, as along such adhesions intra-intestinal micro-organisms not infrequently find their way. This fact is recognized by genito-urinary specialists, who find traces of colon bacilli in the bladder whenever adhesions between that viscus and the intestines are known to exist.

In a word, there would seem to be a splendid opportunity for a more thorough individual study of cases of puerperal fever than has hitherto been the case, since it has been the custom, as a rule, to group all such cases indiscriminately under the head of infection due to carelessness on the part of the attending physician or nurse. It is probable that not a few medical attendants have been brought under suspicion of carelessness in technic when in reality the source of the infectious material was some previously existent microbic condition newly aroused by the disturbance of anatomic relations within the abdomen and by the increase of physiologic function consequent on nature's effort to absorb as rapidly as possible the superabundant tissues left after labor has been completed.

## THE ESSENTIAL LESION IN HEMOPHILIA.

There is probably no disease which is so characteristic clinically and so devoid of characteristics pathologically as hemophilia. The hereditary character of the affection, the peculiar transmission through the female line to the male descendants, the tendency to continued hemorrhage from slight injury or spontaneously, the subcutaneous hemorrhages, and the acute joint lesions present a clinical picture which can hardly be confused with any other condition. It is true that in rare cases, such as those in which kidney hemorrhages are the only symptom, the diagnosis is not always so clear, but these are the exception.

The underlying cause of this interesting condition, which has been recently studied by Sahli,[1] has been a source of investigation and discussion since the disease was first discovered. The anatomic findings in fatal cases have been so inconstant and so uncharacteristic that either a new theory or a modification of an old one has been put forward by almost every new investigator. Early in the history of the disease, the theory that a hypoplasia of the heart and vessels was the causal factor was advocated because Virchow had found these lesions in certain cases investigated by him. Those who advocated this theory apparently overlooked the fact that Virchow had described essentially similar lesions in an entirely different disease, chlorosis. Later, when this theory was seen to be untenable, other conditions in the vessels or in the blood itself were held responsible for the disease. Some writers claimed that the vessels had unusually thin walls, others that they were ruptured with abnormal ease, and still others that a condition of fatty degeneration was present. The blood itself was said by some authors to contain an insufficient amount of fibrin or to lack in the power of coagulation from other unknown and mysterious causes. Still later, the observation that in some cases the heart was hypertrophied led to the assumption that increased vascular tension caused the hemorrhages. Even the theory of infection was dragged in by some writers to explain this typically hereditary disease. Recent investigations show that some of the hypotheses cited can not be backed up by observation, while others are probably in part correct. Furthermore, it is also evident that factors hitherto unnoted play a part. Changes in the blood itself, so far as its alkalinity, its molecular concentration, and its fibrin content are concerned, have not been found. The same can not be said with regard to its coagulability, as the researches of Sahli show distinct changes in this property of the blood.

The discordant observations of preceding observers on this point are shown to have been due to the fact that the coagulability varies at different stages of the disease. In the intervals between the periods of activity the blood shows a well-marked lack of coagulative power, evidenced by an increased length of the coagulation time. During the active period of the disease, however, the coagulation time is normal in length or even shorter than normal. This increased coagulability probably represents a reaction on the part of the organism as a result of hemorrhage, as it is most marked in patients who have lost a good deal of blood. The change in the coagulability alone will not explain the disease, and it seems probable that another factor comes into play. This is, most likely, a deficiency, hereditary in character, of the vessel walls, and perhaps also of the cells of the blood-forming apparatus. There is good evidence that in normal intravascular clotting of the blood the formation of fibrin is aided by certain products of the cells of the vessel wall itself. It seems likely that these secretions, which are presumably of the nature of ferments, are lacking in hemophilic patients. Inasmuch as the difficulty in hemophilia is not a lack of extravascular coagulation but a lack of intravascular clotting, an entirely different matter, such a view seems reasonable. It is certainly more reasonable than any hypothesis so far advanced, and has the advantage of a considerable support from observed facts.

If we assume this explanation of hemophilia to be reasonably likely, a revision of the therapeutics of this condition should follow. As it is, the therapeutics of this disease are purely empirical, or are based on the assumption that the hemorrhage is similar in character to the hemorrhage due to trauma or to pathologic conditions which erode the vessels. Many remedies have been used on the assumption that they might do good when it would have been better to question whether they could not do harm. It would certainly seem irrational to use the ordinary internal hemostatics to combat a hemorrhage due to a constitutional cell deficiency. These objections do not, of course, have the same force with regard to external applications, especially mechanical ones. It seems within the bounds of possibility that organotherapy, in the form of local or even of intravascular applications of macerated blood vessels, might be of value, if the enzymes which their cells secrete are sufficiently stable. The question is one which must be investigated further.

## SPECIAL TRAINING FOR EMPLOYES IN STATE INSTITUTIONS.

An edifying illustration of the general statement in our editorial of March 11 on the "Necessity of Special Training for Administrative Medical Work" is afforded by the present situation in Illinois. We pointed out in the editorial in question the need of expert knowledge and of special training for the administrative work of public institutions and of public boards. So palpable has been the deterioration of many public charitable institutions under the recurring political changes of the last dozen years that public opinion has compelled the introduction into the present legislature of a bill for a state merit law. As the agitation has been great enough to pledge both political parties and the governor of the state to such a measure, we may assume that a law will be secured which will protect all the appointments to the state public institutions from the control of politicians. This goes further than our suggestion, since it involves the 2,500 or more positions in the penal and charitable institutions, most of which are not filled by physicians. It is plain, however, that the filling of these places also with experts would be in the line of medical progress. How are we to obtain these experts? That is the question which another bill now before the Illinois legislature undertakes to solve. This bill provides an appropriation of $15,000 yearly for the training of state employes in and by the State University.

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[1] Zeitschrift für klin. Medicin, vol. lvi, Nos. 4-5.

Any training of experts for public service is still more or less experimental in this country; but this measure which actually provides that the university shall take a hand in the training of a prison guard or of an asylum attendant is bold, indeed. It will seem to the Philistine foolishness and to the politician a stumbling block, but to the student of criminal psychology and to the alienist it will seem a welcome public recognition of a condition that should be remedied. Every one at all acquainted with hospitals for the insane knows that the physician can only give the briefest personal attention to each patient and that the whole system of treatment depends for its efficacy on the attendant. In the same way it is the prison guard—the shop foreman—in whose hands, if anywhere, the reformation of the prisoner must lie. Yet these positions are filled by people chosen haphazard or, worse, "pulled" in.

We are not fully informed as to the details of the proposed training. In fact, we judge that they must be worked out somewhat tentatively by the university authorities. The German state universities train physicians admirably for institutional service, but they offer no direct suggestions for the proposed scheme whose democratic character is, indeed, so purely American that it will necessarily have to make its own precedents.

The training ought certainly to be practical, the student should be given a happy balance of clinical work and of theoretical teaching. There should be enough theory to make him understand the clinic and respect his task. We judge that much of the instruction would necessarily be given in the form of lectures by experts in the institutions themselves. Whatever the methods which experience might develop for the suggested teaching, the very proposal puts a new face on the otherwise cold and barren aspect of a civil-service law, whose more obvious virtues are merely negative. To keep plundering and ignorance out of public institutions should not be sufficient to satisfy us. We must fill these institutions with medical spirit and with scientific ardor. We must demand for the baffling task of restoring the mentally and morally sick the finest ability and the best training.

## TRUTH AND POETRY CONCERNING URIC ACID.

### XIII.—CONCLUDED.

After Burian and Schur had demonstrated that the uric acid excreted consists of two components, an exogenous part dependent on the purins of the food and independent of the patient's individuality, and an endogenous part, individually different but constant for each individual, it became important in studying uric-acid excretion in gout to ascertain (1) whether the amount of endogenous purin is altered, and (2) whether feeding purins to the gouty patient affects the exogenous component as in health. The examinations made by Kaufmann and Mohr[2] in 1902 indicate that the values for both components are normal in gout. As yet no one has tested the power of the body in gout to form uric acid synthetically in comparison with that power in health; this should be done.

After 1880, a number of investigators opposed Garrod's ideas regarding diminished uric-acid excretion in gout. Bouchard, in 1885, declared that the excretion is not diminished between the attacks of acute gout, but instead is normal in amount or even increased, and Mordhorst's (1891) figures average distinctly above normal. Since then, Vogel in 1893, Klemperer in 1895, and Camerer in 1896, have carefully studied uric-acid excretion in gout and obtained similar results. An analysis of all the data available affords no convincing evidence that gout, in the chronic stage or in the intervals between acute attacks, has any characteristic influence on the amount of uric acid excreted. Kolisch,[3] in 1895, believed that he could explain the contradictory results of his predecessors by a comparison of the amount of uric acid excreted with that of the alloxuric (xanthin or purin) bases. According to his view, uric acid is formed in the kidneys, from xanthin bases, and the amount of uric acid excreted depends on the functional condition of the kidneys. He asserted that the total alloxuric nitrogen is always increased in the urine of gout, but in the early stages the kidneys are able to convert the xanthin bases into uric acid and the uric acid in the urine is increased, while, in the later stages, when the function of the kidneys is impaired, the xanthin bases are less completely converted into uric acid and are partly given off as such in the urine, the amount of uric acid excreted in the urine becoming normal or even diminished in amount. These findings excited much interest, but careful controls made by Weintraud in 1895, Rommel in 1896, Schmoll in 1896, and Badt in 1896, failed to confirm them, so that Laquer,[4] summing up the whole matter, was able to state positively that in gout the alloxuric bodies behave in no constant or characteristic fashion; the alloxuric bodies are not increased *in toto* in the urine, nor is the excretion of the bases increased over that of uric acid. During the decade just past, investigators in numbers have confirmed this statement. We may therefore regard it as well established that the excretion of uric acid and the purin bases in chronic gout, and in acute gout in the intervals between attacks, goes on within normal limits. Despite this restriction of the excretion to normal limits, there is one feature of the excretion, however, which is striking—there is a great variability in the purin excretion as contrasted with the constancy of the values in the same circumstances in health.

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[2] Kaufmann, M., u. Mohr, L.: Beiträge zur Alloxurkörperfrage und zur Aetiologie der Gicht. Deutsch, Arch. f. klin. Med., lxxiv, 1902, 348, 586.

[3] Kolisch, R.: Ueber Wesen und Behandlung der uratischen Diathese, Stuttgart, 1895. See also Ueber Wesen und Behandlung der Gicht, Wien. klin. Wochft., viii, 1895, 787.

[4] Laquer, B.: Ueber die Ausscheidungsverhältnisse der Alloxurkörper im Harn von Gesunden und Kranken. Verhandl. d. xiv, Kongr. f. inn. Med., 1896, 333.

We must emphasize the fact that the relations dwelt on at some length above do not hold for the acute gouty attack. In it the uric-acid excretion is very typically altered. Views regarding the behavior in the acute attack were for a long time conflicting, but, thanks to the laborious researches of the younger His[5] and his colleagues, the matter has been definitely settled. The acute gouty attack is ushered in by a *diminution* in the amount of uric acid excreted, this diminution tending to precede the attack by two or three days. When the joint symptoms begin to appear, the amount of uric acid excreted increases and remains for some days considerably above the average level; then it gradually sinks until the average level of excretion is regained. If several joints are involved, there is a corresponding depression of excretion preceding every new attack, followed by the typical increase. Only when the attacks follow each other very irregularly does the picture become confused. This behavior of the uric-acid output in acute gouty attacks has been confirmed in this country by Futcher of Johns Hopkins; in Germany, Magnus Levy's findings agree with those of His regarding the increased output in the attack, though they do not seem to indicate a premonitory diminution. Wiener.[6] in his admirable review, epitomizes the whole subject with the statement. "While, therefore. we dare not assume that in gout as a whole the excretion of uric acid behaves in any characteristic way, we may grant that there is constantly a greater excretion in the acute gouty attack than in the free intervals, even if the excretion does not exceed normal limits; probably the attack is preceded by a somewhat diminished excretion."

It seems likely that this behavior of the uric-acid excretion during the acute attack is due first to a retention and then to a "sweeping out" of the previously retained uric acid. If this be the case, the fact is of the highest interest in connection with the pathogenesis of the acute attack of gout, but it is of no help in explaining the constant increase of uric acid in the blood in gout. Indeed, the study of uric-acid excretion has thus far thrown no light on this dark point; it does not tell us whether the increase in the blood is due to diminished destruction, to increased formation, or to retention.

## OUR ATTITUDE TOWARD THE NOBEL PRIZES.

One not infrequently hears the fact that so far no American has received a Nobel prize commented on in a manner disparaging to American investigators. As already pointed out in these columns,[1] *the work of Reed and his colleagues in the etiology of yellow fever, and the far-reaching consequences thereof, is more than sufficient to show the injustice of this reflection, so far as medicine is concerned, and perhaps similar injustice is done to American work in the other lines of achievement of which notice is taken in the award of these prizes.* Be that as it may, however, it appears not unlikely that as yet names of Americans deemed worthy of the consideration of the awards committee have not been presented in the proper way by some association or university.

In its issue of April 1, 1905, the *Medical News* recommends that some association—and why not the American Medical Association?—take up the task of submitting a proper report to the Nobel committee, and mentions the yellow fever work as most deserving of immediate recognition.

In connection with this matter it may not be amiss to point out another American discovery of fundamental importance in the development of our knowledge of mosquito-borne diseases, and that is the discovery in 1893 by Theobald Smith of the parasite of Texas fever (*Pyrosoma bigeminum*), and the demonstration by Smith and Kilbourne that this hematozoön is transmitted by a tick (*Boophilus bovis*). This beautiful work cleared up the etiology of this widely spread disease and exercised a powerful influence on the trend of the investigations of the next few years that culminated in the discovery of the rôle of the mosquito in malaria. Indirectly, no doubt, the work of Smith and Kilbourne also influenced the work of Reed and his co-workers. The importance of the discoveries in Texas fever lies *in the fact that they gave us the first demonstration of an intermediate host in an infectious disease of this class.* They pointed the way for the subsequent work in regard to other diseases of the same class. In the event that an effort is made to secure Nobel prizes for American work, it may be just to consider also the work in Texas fever.

It is now several years since the discoveries in Texas fever and yellow fever were made, and the fact that formal application has not yet been made for Nobel prizes on their account may argue that little thought has been given the matter. While no one believes that the Nobel prizes can have much direct influence on investigators and investigation, yet we owe it to our own investigators to secure for them all adequate rewards in our power. We therefore heartily support the *Medical News* in the effort to set in motion the machinery necessary properly and forcibly to present the necessary statements.

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[5] His. Jr., W.: Untersuchungen an Gichtkranken. Wien. med Blätter, xix, 1896, 291. See also Ueber Gicht. Schmidt's Jahrb. ccl, 1896, 266, and (with Cohnheim, Freudweiler, Respinger and H. His). Die Ausscheidung der Harnsäure im Urin der Gichtkranken mit besonderer Berücksichtigung der anfallsfreien Zeiten und bestimmter Behandlungsmethoden. Deutsch. Arch. f. klin. Med., lxv, 1900, 156.

[6] Wiener, H.: Die Harnsäure in ihrer Bedeutung für die Pathologie. Ergebn. d. Physiol., ii. Abt. 1. 1903, 377.

[1] Jan. 2, 1904, p 38.

### THE PREVENTION OF IDIOCY AND IMBECILITY BY CASTRATION.

The governor of the state of Pennsylvania in his wisdom has seen fit to veto a bill passed by the Pennsylvania legislature and directed toward the prevention, by means of castration, of procreation on the part of idiots and imbeciles in public institutions, and he has chosen to administer what he appears to consider a rebuke to too enterprising anatomists and surgeons. The governor, who by the way holds the opinion that his kinsman, the late Senator Quay, was as great a man as Webster or Clay, bases his objection to the bill on the fact that the nature of the intended operation is not sufficiently described, its only qualification being that it shall be the "safest and most effective" in the minds of a neurologist, a surgeon and a physician. By a process of subtle reasoning, the governor reaches the conclusion that the "safest and most effective" method of preventing procreation among the individuals under consideration would be to cut off their heads, but he is charitable enough to express the view that this means would probably not be resorted to, and only some part of the human organism would be destroyed. He has made the startling discovery that "scientists, like all other men whose experiences have been limited to one pursuit and whose minds have been developed in a particular direction, sometimes need to be restrained." It is his gratuitous judgment that "men of high scientific attainments are prone, in their love for technic, to lose sight of broad principles outside of their domain of thought." He thinks "a surgeon may possibly be so eager to advance in skill as to be forgetful of the danger to his patient." Further: "Anatomists may be willing to gather information by the infliction of pain and suffering on helpless creatures, although a higher standard of conduct would teach them that it is far better for humanity to bear its own ills than to escape them by knowledge only secured through cruelty to other creatures." The governor, who was a judge on the bench before he was placed in his present position by "the organization," reasons that "if idiocy could be prevented by an act of assembly we may be sure that such an act would long ago have been passed and would have been approved in this state, and that such laws would have been enacted in all civilized countries." The learned governor is not without views on the etiology of idiocy. "This mental condition," he states, "is due to causes many of which are entirely beyond our knowledge. It existed long before there were ever such inmates of such institutions." It would thus appear that the action of the governor was not taken merely because the exact nature of the operation contemplated by the act, namely, removal of the ovaries or testicles or vasectomy, was not specifically mentioned in the text of the bill. Rather, he sets his opinion against that of conservative experts, who have recommended the operation as looking toward the elimination of the most important factor in the continuance of the disorders at which it is aimed, namely, the transmission of the tendency to insanity.

### THE PERIL TO THE COMMUNITY OF ALCOHOLIC MANIA.

As a people we are slow to learn certain facts. The recent murder in cold blood of a helpless and innocent wife and mother by a maniacal husband, whose insanity was of that type which regularly occurs in the alcoholic, reminds us that these frightful tragedies recur with distressing frequency. The relatives of those who abuse alcoholic beverages ought to be taught the danger signals. Whenever a drinking man begins, without cause, to suspect the virtue of his wife and the honor of his friends, it is time to confine him where he can do no harm, at least until the poison is out of his brain. Failure to do this is to invite murder in its most revolting forms. All this is well known to the members of the medical profession, but the physician is seldom asked for advice in such cases, and if he were his counsel would only rarely be followed. No man in the community is more dangerous to his family and to the public than the heavy drinker when he reaches the stage of alcoholic delusion that is marked by unfounded suspicions as to the conduct of those whom he naturally and in fact should most trust. When a man begins to harbor such delusions it is the instant duty of his friends to put him where he can do no harm and can get no more liquor.

### MEDICINE AND POLITICS IN RUSSIA.

A striking fact was reported in the Associated Press dispatches from Moscow, April 5. In view of the probability of a cholera epidemic, a congress of physicians has just been held in that city and, as an essential first step toward the warding off of the threatened scourge. the members advise a complete and radical change in the whole government and administration of Russia. They demand, in fact, the immediate calling together of a constituent assembly; the stoppage of the war, which has thrown the country into excessive poverty; the reform of the tax laws and the whole general program of the leading Russian reformers of the day. Without all these, they claim, it would be impossible to carry out the needed sanitary measures. In the present unfortunate condition of the country, the political problems have, to this extent, become also the medical ones, and it would not, under ordinary conditions. such as exist under less autocratic governments. be especially remarkable to find the medical profession freely expressing its mind under such circumstances. In Russia, however, the case is different. and every one who has advocated or endorsed the propositions submitted runs a serious risk. Nevertheless. it appears that their endorsement was general. thus showing that our confrères have the courage of their convictions. Acting for the public good, they have not hesitated to risk. perhaps. even life and liberty. The Journal has often insisted on the duty of the physician to take his part in public affairs. at least in regard to questions involving sanitary welfare. but there has never been any occasion. and we trust there never will be anywhere else than in Russia.

calling for such demands on the part of the medical profession as these. An epidemic of cholera is not, at the present time, dreaded as in the past, but in the disorganized condition that exists in many portions of the Russian empire its invasion could not be otherwise than disastrous. It may be that the autocracy will consider that between the cholera and any surrender of its powers the cholera is the alternative of choice, no matter how great its extent and cost of human life. Whatever we may think of some of the methods of the Russian revolutionists, it is satisfactory to know that the members of our profession are willing to risk doing what they consider their duty without regard to consequences.

## THE RATE OF ABSORPTION FROM INTRAMUSCULAR TISSUE.

Although various therapeutic agents have been injected intramuscularly at different times, it was rather with the view of minimizing pain and of averting the formation of abscesses than of any expected increase in the rate of absorption. As a matter of fact, it was believed by some that the rate of absorption from the intramuscular tissues was slower than that from the subcutaneous tissues. It has been conclusively demonstrated, however, by Drs. S. J. Meltzer and John Auer[1] that the relation of events is exactly the reverse and that the physiologic effects following intramuscular injection are only less prompt and less pronounced than those following intravenous injection. Observations were made with adrenalin, curare, fluorescein and morphin. The evidence shows that the fluid injected does not enter directly into the circulation, but is at first deposited between the muscular fibers, whence it is carried by some process of rapid absorption into the blood stream. While in general the difference between absorption from the intramuscular and subcutaneous tissues appears to be merely one of degree, there is reason for believing that some substances are better absorbed through the one than the other channel. The results of the investigation under consideration may find immediate practical application, inasmuch as smaller doses are required for intramuscular than for subcutaneous injection, while rapidity and intensity, in conjunction with long duration, of effect may be secured by combining both methods of administration.

## BASOPHILIC GRANULATIONS IN RED BLOOD CORPUSCLES.

Granulations tingible with basic stains have been observed in the red blood corpuscles of the circulating blood especially in the presence of anemia, and they have been thought to represent a stage in the transformation of normoblasts into adult red corpuscles. Similar granulations, however, have been found also in the erythrocytes in cases of lead poisoning, and they have been induced experimentally by the administration of phenylhydrazin; and under such circumstances they have been attributed to a degenerative process of toxic origin involving the hemoglobin. The frequent presence of nucleated red corpuscles exhibiting various grades of nuclear degeneration suggests that the granules may represent fragments of disintegrated nuclei and that the morbid process may take place in the hemopoietic organs and not in the general circulation. Finally, basophilic granulations have been demonstrated in blood from normal individuals. In order to determine what relation, if any, exists between nucleated red corpuscles and the granular cells under consideration, Dr. W. B. Cadwalader[1] made a study of the blood from a number of apparently healthy individuals, from 27 cases of lead poisoning and from 10 cases of anemia, of both primary and secondary varieties. He found that basophilic granulations occur normally in small numbers in erythrocytes in the blood of man, but their number is increased under certain abnormal conditions, undergoing decrease as convalescence sets in. Further, he found that nucleated red corpuscles are common in the blood of individuals suffering from lead poisoning and that their presence is always associated with an increase in the number of granular red cells. It was noted that the anemia secondary to lead poisoning is, as a rule, only moderate in degree. The granular cells are most common in cases of lead poisoning. Possibly they have their origin in the blood-forming tissues and they are probably the results of a fragmentation of the nucleus of the red blood corpuscle.

## THE SIGNIFICANCE OF TRACES OF BLOOD IN TYPHOID STOOLS.

Since Rossel originated the aloin test for the detection of traces of blood in the feces it has been used to a considerable extent in the detection of occult hemorrhage in gastric carcinoma and ulcer. In Naunyn's clinic a routine use of this test has been carried on for some time in connection with the typhoid cases. The result of the test in the first eighteen cases is described by Petracchi.[2] Of eighteen cases tested, eight showed traces of blood at some stage of the disease. In the great majority of cases the positive test was observed during the second and third weeks of the disease, during the period when hemorrhages apparent to the naked eye are likely to appear. In four of these cases large hemorrhages occurred, generally three or four days after the occult hemorrhage was detected. Most of the eight cases were severe, though the autopsies on three of them showed that the intestinal lesions were not unusually extensive. This shows, Petracchi thinks, that the occurrence of intestinal hemorrhage in typhoid is the result of the character of the infection rather than of the extent of the intestinal lesions. In some of the cases in which the presence of occult hemorrhage was detected, the hemorrhage was accompanied by a distinct increase in the rapidity of the pulse. In four cases in which this occurred large hemorrhages resulted in three. Petracchi considers the combination of occult hemorrhage with increased rapidity of pulse rate as a valuable index of a possible severe hemorrhage. It seems reasonable to assume that if by this test we can foresee the probability of intestinal hemorrhages, we will be able more successfully to combat them, and should be able to reduce the mortality from this cause.

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[1] Journal of Experimental Medicine, vii, 1, Feb. 25, 1905, p. 59.

[1] Bulletin of the Ayer Clinical Laboratory of the Pennsylvania Hospital, No. 2, January, 1905, p. 29.

[2] Zeitschrift für klin. Med., vol. lvi, Nos. 1-2.

# Medical News

## ARKANSAS.

**Smallpox.**—Malvern reports 7 cases.——Warren has had 18 cases, but no new cases have developed for 17 days.——Little Rock reports 17 cases.

**Deaths in 1904.**—During the year 823 deaths occurred in Little Rock, of which 43 were from violence. The rate per 1,000 of population was 14.1. There were 50 deaths at the City Hospital.

**Medical Department Commencement.**—At the annual graduating exercises of the Medical Department Arkansas University, Little Rock, April 12, a class of 28 received diplomas from Dr. Hartzog, president of the university.

**Sustains Federal Regulation.**—In the case of Dr. S. C. Van Leer et al vs. the federal medical board of Hot Springs—the case in which the status of non-licensed physicians was sought to be established—Judge Trieber held that the act of the Arkansas legislature ceding jurisdiction over the reservation, and the act of congress of April 20, 1894, vesting the right in the secretary of the interior to make rules and regulations for the government of the reservation, are valid and binding. He took under advisement the question as to whether the allegations of the bill sufficiently charge any fraud against the board, in arbitrary actions under the guise of the regulations.

## GEORGIA.

**Fire in Griffin.**—A fire in the business portion of Griffin, March 24, caused a loss to Dr. Joseph M. Thomas of $1,250 on which he had only $350 insurance.

**Commencements.**—The Atlanta College of Physicians and Surgeons graduated a class of 48, April 3. Dr. Richard Douglas, Nashville, Tenn., delivered the annual address and the diplomas were presented by the president, Hon. Howard Van Epps.——A class of 14 received diplomas from the medical department of the University of Georgia at the commencement exercises held in Augusta, April 1. Dr. De Saussure Ford, dean of the faculty, presided, and Hon. C. P. Pressly delivered the address to the graduating class.

**State Association Meeting.**—The fifty-sixth annual session of the Medical Association of Georgia will be held at Atlanta, April 19, 20 and 21. The meetings of the association will be held in the ballroom of the Kimball House. The session will open at 9:30 on Wednesday morning. On Wednesday night a supper will be tendered to the members of the association at the Piedmont Hotel. On Thursday night there will be a special meeting of the association to consider the adoption of the new constitution. A program of 66 papers has been prepared. The railroads will give a rate of fare and a third, and the hotels of Atlanta have agreed to make special rates to visiting members.

## ILLINOIS.

**Smallpox.**—Danville is reported to have 25 cases of smallpox.

**Nitric Acid Burns.**—Dr. Stephen W. Jones, Danville, was seriously burned, April 4, by the breaking of a bottle of nitric acid which he was carrying in his pocket.

**State Board Meeting.**—The regular quarterly meeting of the State Board of Health was held in Chicago, April 11. Special attention was devoted to the prevalence of cerebrospinal meningitis in the East and its invasion of Illinois. The prevalence of this disease in Illinois will be thoroughly investigated and such preventive measures will be adopted as may be warranted by the results of this investigation. The publication of a new edition of the board's circular on consumption was ordered. The examinations of the board were held at the Great Northern Hotel, April 12, 13 and 14. The next examination will be held in Chicago, May 3.

**Prison Tuberculosis.**—The State Board of Health made an inspection of the Illinois state penitentiary at Joliet, April 7, to ascertain the sanitary condition of the prison and the effect on the health of the convicts of the enforcement of the anti-convict labor law. It has been alleged that since this law went into force and put the convicts out of employment tuberculosis has increased over 40 per cent. among the prisoners. The investigations were made by the president, secretary, chemist and sanitary engineer of the board, and will be concluded next week, when an exhaustive investigation will be made to determine the character of the air in the cell houses.

**Wants Support of Profession.**—The State Board of Health desires to request the physicians of the state through the columns of The Journal to enter their protests to their senators and representatives against the passage of Senate bills 169, 292 and 311 (osteopathic) now on passage in the senate, and Senate bills 237 (optometry) and 271 (antivivisection), now in the house. Also against the passage of House bills 228, 229 and 274 (osteopathic) and 432 (optometry) now in the House of Representatives. The board also wishes to urge the members of the medical profession to support House bill 330 (tuberculosis sanitarium), which is still in the House of Representatives.

### Chicago.

**Personal.**—Dr. James B. Herrick sailed for Europe April 11. He will spend the summer in study in Berlin.

**Appropriation for New Building.**—The legislature has appropriated $75,000 for a new building for the Illinois Charitable Eye and Ear Infirmary.

**Smallpox.**—The city council has appropriated an additional sum of $10,000 to be employed in preventing the spread of smallpox.——Three cases were found on April 6 among the patients at the Illinois Charitable Eye and Ear Infirmary.

**The Deaths of the Week.**—For the week ended April 8 the deaths numbered 512, equivalent to an annual mortality rate of 13.40 per 1,000. Pneumonia still leads death causes with 70; other causes are, consumption, 67; nephritis, 44; heart diseases, 37, and violence, 36.

**Deaths of the Quarter.**—During the first three months of 1905 there were 7,500 deaths reported, or 186 fewer than the corresponding period of last year. This is equivalent to an annual mortality of 15.34. Pneumonia caused 1,526 deaths; consumption, 873; heart diseases, 511; nephritis, 489; violence, 339, and suicide, 108.

**Comparative Mortality of the Quarter.**—The comparative statement of mortality of the first three months of this year and of the corresponding period of last year is on the whole favorable to 1905. There were 186 fewer deaths and a decrease of 4.1 per cent. in the general death rate. But the deaths under 5 years of age number 429 more than in 1904, while the deaths among those over 20 are 630 fewer. Among the causes of death showing reduction are apoplexy, 4; cancer, 9; convulsions, 10; heart disease, 65; nervous diseases, 5; pneumonia, 286; scarlet fever, 37; typhoid fever, 29, and violence other than suicide, 11. Among those showing increase are acute intestinal diseases, 30; Bright's disease, 7; bronchitis, 8; consumption, 14; diphtheria, 6; influenza, 55; measles, 61; smallpox, 33; suicide, 4, and whooping cough, 90.

## MARYLAND.

**Personal.**—Dr. John Mace, Cambridge, was operated on at the Cambridge Hospital for appendicitis, April 6.

**Societies Meet.**—The Frederick County Medical Society held its annual meeting at Brunswick, April 6.——The Howard County Medical Society held its annual meeting April 6 at Ellicott City, when the following officers were elected: President, Dr. Samuel A. Nichols, Dayton; vice-president, Dr. John W. Hebb, Jr., West Friendship; secretary and treasurer, Dr. L. Gillis Owings, Ellicott City, and censor, Dr. Bernard J. Byrne, Ellicott City.

### Baltimore.

**Pneumonia Leads Consumption.**—The Health Department reported 40 deaths from pneumonia and only 31 from consumption for the week ended April 8.

**Herter Lecturer.**—Prof. Dr. Hans Meyer of the University of Vienna has accepted the invitation to deliver the Herter Lectures at Johns Hopkins University, October 5 and 6. His subject will be, "The Physiological Results of Pharmacological Research."

**Correction Corrected.**—Our Baltimore correspondent informs us that the bureau of information for visiting physicians is not at the Johns Hopkins University Hospital, as erroneously announced in The Journal of March 25, nor at the Baltimore University Hospital, as announced, also erroneously, in The Journal of April 1, but at the University Hospital.

**Personal.**—Dr. Jane E. Robbins, who has had charge of the Locust Point Social Settlement for some months past, has resigned.——Dr. John Williamson Palmer, the author of "Stonewall Jackson's Way" and other poems, celebrated his eighty-first birthday April 4.——Mr. James Taylor Lewis, counsel for the New York State Medical Association, spoke on "Medical Quacks" at the semi-annual meeting of the Baltimore City Medical Society, April 5.

**Free Treatment for Deformed Children.**—Henry A. Wise, assistant superintendent of schools, informs us that by a mistake of his the newspapers announced that "Dr. R. Tunstall Taylor had been granted permission by the school board to treat deformed children free of charge," and that the item should read: "The Hospital for the Relief of Crippled and Deformed Children has been authorized by the school board to treat poor, deformed school children free of charge."

## NEW YORK.

**Convalescent Home Incorporated.**—The Solomon and Betty Loeb Memorial Home for Convalescents has been incorporated. The foundation has been erected by the children of those for whom the home is named. The amount given for this charity is $750.000, of which $500,000 is set aside as a permanent endowment fund. A farm of 70 acres has been purchased at East View. Westchester County, on which a number of detached cottages are to be built.

**Osteopathy Bill Amended.**—The bill legalizing the practice of osteopathy has been amended on the senate side so as to give the board of regents authority and make the list of subjects for examination include therapeutics, practice and all other subjects which practitioners of other schools are required to know. The same bill met further opposition before the assembly committee on public health. Dr. Abraham Jacobi of New York, and Drs. Root, Shaw and MacDonald were those who spoke in opposition to the bill. As there were many others opposed who were not present because of an error in the date of the hearing, another hearing was promised.

**Work of the Legislature.**—The governor has signed the bill authorizing the state to give the buildings now used by the House of Refuge, on Randall's Island, to New York City in exchange for lands and buildings in Brooklyn now used for state hospital purposes.——Four bills have been favorably reported bearing on the question of the New York City water supply: Mayor McClellan's bill giving the city the right to go into Ulster County for a supply; Assemblyman Apgar's two bills giving villages and cities in Westchester County the right to tap the Croton mains and providing for a speedier settlement of condemnation proceedings; and the Yale bill, giving Putnam County the same rights as those contained in the Apgar bill. plus the right to use lakes for boating and fishing.——The bill in regard to the State Water Commission has been reported on by the Assembly Ways and Means Committee and the five bills will be passed at the same time.——The same committee reported an appropriation of $150,000 to establish an insane receiving hospital in New York City to cost $300.000. It is to be used as a detention hospital for those thought to be insane, where they will undergo a course of examination and supervision before being admitted to a regular state hospital for the insane.——A bill has been introduced making it a felony for any one to sell or give away any compound or preparation composed in whole or in part of any unwholesome, deleterious or poisonous substitute for pure and wholesome liquor. The punishment for a violation is to be a fine not exceeding $2.500 or imprisonment for not more than ten years, or both fine and imprisonment.

### New York City.

**Personal.**—Dr. Louis L. Seaman sails from San Francisco on a mission to the far East, April 18.

**Buffalo Spitters Beware!**—Detectives have been assigned on Buffalo street cars to arrest all violators of the antispitting ordinance.

**Membership Full.**—The New York Academy of Medicine now has 1,000 members. its limit of membership, and has established a waiting list.

**For Cancer Patients.**—About $2.000 will be netted for the cancerous poor of New York by the course of lectures on "The Women of the Renaissance," given by Dr. James J. Walsh.

**Buffalo Personals.**—Dr. Charles Van Bergen sails for Europe April 27.——Dr. Charles Banta has returned from a trip abroad.——Dr. Walter S. Goodale has been appointed special agent of the charity organization society in charge of the tenement house and tuberculosis work.

**Contagious Diseases.**—There were reported to the sanitary bureau for the week ended April 1, 470 cases of measles. with 21 deaths; 413 cases of tuberculosis, with 172 deaths; 317 cases of diphtheria, with 31 deaths; 224 cases of scarlet fever, with 20 deaths; 189 cases of cerebrospinal meningitis, with 131 deaths; 45 cases of typhoid fever, with 6 deaths; 149 cases of varicella and one case of smallpox.

**Tuberculosis Clinic a Success.**—A statement has been given out that the clinic of the Department of Health for the treatment of communicable pulmonary diseases has successfully passed the experimental stage and has proved a valuable aid in the campaign against consumption. This clinic was opened March 1, 1904, and since that time 5,100 patients have applied for treatment, making 13,740 visits. Of this number 527 were placed in hospitals and sanatoria. The objects desired to be attained are early recognition of the disease, careful supervision of persons receiving treatment, a supply of milk and proper food to indigent cases, instruction in regard to sputum, etc., and the extension and strengthening of the sanitary control of consumption among the poor by the Health Department.

**The Meningitis Epidemic.**—The presumption that the epidemic of cerebrospinal meningitis was on the decline seems to have been a mistake, as the high mortality continues. Since the beginning of the year Dr. John S. Billings, chief of the division of communicable diseases of the Health Department, has kept a map on which the deaths from this cause are designated from week to week. So far the map shows 800 cases. Most of the cases have occurred near other cases. That part of the city bounded by Fifth Street, the Brooklyn bridge, Broadway and the East River has been most affected, about 200 cases occurring in this area. The map seemed to show that there were very few cases in the parts of the city populated by well-to-do people, and seems to bear out the theory that cleanliness is the chief preventive of the disease. It would also seem to support those who advocate the fumigation of houses after cases have appeared.

**To Isolate Contagious Diseases.**—An effort is being made by the Health Department to give the city an adequate and modern equipment for the care of cases of contagious diseases. At present there is no place where a patient with measles can be taken by the Department of Health for isolation. There are accommodations for only 60 cases of diphtheria, while from 8.000 to 10.000 cases are reported annually, 75 per cent. of these being in the tenement districts, where it is impossible properly to isolate them. Several buildings will be opened this year. The execution of the plans of the department will cost $7,000,000. It is intended to rebuild the isolation plant in Brooklyn. The buildings already constructed, those under course of construction, and those to be begun as soon as plans can be prepared. will cost about $500,000. Three new buildings to cost $703.000 will be opened at Willard Parker Hospital, a scarlet fever pavilion accommodating 300 patients, an administration building and a laboratory for the analysis of food products and for making bacteriologic examinations. A new site adjoining the present Willard Parker Hospital site is to be purchased with $250.000 of the appropriation. This is to be used for measles and diphtheria pavilions similar to the scarlet fever pavilion. In explaining the request for funds to provide for an epidemic of measles due next spring a chart was shown which had been kept since 1898, and this shows that every other year measles has been epidemic. In 1898 the maximum number of cases reported in any one month was about 2,600; in 1899, 1,700; in 1900, 4.200; in 1901, 1,500; in 1902, 3,900; in 1903, 1,750; in 1904, 7,100, and in 1905 up to April 1, 1,656.

## PENNSYLVANIA.

**Personal.**—Dr. J. H. Funk, Boyertown, has been elected state pomologist by the State Board of Agriculture.

**Hospital Staff Resigns.**—The medical staff of St. Joseph's Hospital, Reading, resigned in a body March 28. Efforts have been instituted for the reorganization of a new staff. Dr. Harry D. Stryker has been elected president and Dr. David S. Grimm, secretary.

**Osteopathic Bill Fails.**—The senate bill regulating the practice of osteopathy and licensing osteopaths in Pennsylvania, the establishment of a board of osteopathic examiners representing the Pennsylvania Osteopathic Association, and providing for the punishment of persons violating the proposed act, failed in the house by a vote of 94 to 37, April 6.

**Smallpox Spreading.**—The smallpox epidemic at Mount reported daily. The town has been quarantined and no mail is allowed to leave the postoffice. The Pennsylvania System does not allow any of its trains to stop at the place. Other cases of the disease are being reported in the nearby towns, thus showing its tendency to spread. Cases have been reported in Mapleton, Orbisonia, Newton Hamilton, Reedville, Shirley Township and East Waterford, Juniata County.

**Consumptive Bill Vetoed.**—Governor Pennypacker on April 7 vetoed the bill appropriating $300,000 for the erection of two state institutions for the treatment of incipient tuberculosis. He says that the bill provides for a preliminary step in a movement the results of which are of the most extensive character, and, further, that the provisions for charitable work in this commonwealth have already reached formidable proportions. "At the outset," he continues, "and when making the first step, we ought not to shut our eyes to the fact that if we are to provide for consumptives, we may have in time to care also for those afflicted with dangerous contagious disease."

**Meningitis in the State.**—Cerebrospinal meningitis is being reported from different quarters of the state. One death was reported from Shenandoah, April 5; another death in Lebanon from the same cause, April 1, and one case was reported in Pittsburg, April 5. Efforts are being made by the authorities to prevent the spread of this disease. Under the act of June 18, 1895, every physician is required to report all such cases at once. The State Board of Health also directs that after the case is reported "they shall immediately place, or cause to be placed, in a conspicuous place or places on the house or premises in which such cases may be located, a placard or placards in which shall be printed in large letters the words: 'Epidemic cerebrospinal meningitis—spotted fever; an infectious, communicable disease.' All persons are cautioned against entering these premises without permission of the Board of Health. Any person tearing down or defacing this placard is liable to a fine of $100, or sixty days' imprisonment. The posting of the placard is not to be considered as establishing quarantine on the inmates of the house, but merely as warning the public of the danger of entering the same. After the recovery, removal or death of a patient suffering from the disease, the placard should remain posted for at least one week, and the same precautions in the way of disinfection should be taken as in the case of other infectious diseases."

**Public Health Bills Passed.**—The three important health bills introduced into the legislature in January have finally passed the house. The bill creating a Department of Health, although passed last, is the first of this series of bills. It abolishes the present State Board of Health and substitutes a Commissioner of Health, who must be a physician of ten years' practice. He is to be appointed by the governor and is to receive a salary of $10,000. An advisory board of six members is to be appointed, the majority of which must be physicians. The commissioner is empowered to issue subpenas and compel witnesses to testify in any matter to him, and to issue warrants for the arrest of persons who disobey quarantine orders or the regulations of the Department of Health. In the abatement of nuisance which threaten the health of communities the commissioner will have almost unlimited authority. The bill provides that the state be divided into ten districts, each district to be in charge of a physician of five years' practice, who shall receive a salary of $2,500 a year. This bill was passed by a vote of 145 to 24. The Commissioner of Health is given supervision of all the waters of the city used for drinking purposes. Municipalities and private corporations and individuals who supply water for the public are compelled to furnish the Commissioner of Health with a copy of the plans and surveys of their water works, with a description of the sources of supply, and no additional source of supply shall thereafter be used without the consent of the commissioner. Permits to establish water works will also be granted by the commissioner. This pure water bill passed the house by a vote of 125 to 48. The bill establishing a state bureau of vital statistics at Harrisburg, for the immediate registration of deaths and births in the state, was also passed without debate, by a vote of 123 to 25.

## Philadelphia.

**Personal.**—Dr. Thomas C. Potter is seriously ill with angina pectoris at his home in Germantown.——Dr. David L. Edsall has been made assistant professor of medicine in the medical department of the University of Pennsylvania, and Dr. R. Tait McKenzie has been appointed professor of physical education, with a seat in the medical faculty.——Dr. Frank Abbott, resident physician in the Garrettson Hospital, has resigned and Dr. Walter M. Miller has been appointed to the vacancy.

**Examination for Internes.**—Examination for resident physicians to Mercer Hospital, Trenton, N. J., will be held in the laboratories of the University of Pennsylvania, April 15, at 2:30 p. m.——Examination for candidates for interneships in the Methodist Episcopal Hospital will be held April 17 in the hospital building, at 8 o'clock. Four residents will be appointed.——An examination for six resident physicians for St. Joseph's Hospital will be held in the hospital building, May 1, at 6 p. m.

**Dr. Osler to Make Address.**—Dr. William Osler will address the medical students of the University of Pennsylvania by invitation and under the auspices of the Stillé Medical Society of the University, in Houston Hall, April 19, at 8 p. m., on the subject of "The Student's Life." This will be the final address to medical students by Dr. Osler prior to his departure from this country, being the last of three addresses to the students of the universities with which he has been connected—McGill University, Johns Hopkins University and the University of Pennsylvania.

**Health Report.**—The deaths from all causes reported for the week ended April 8 aggregated 503. This is a decrease of 42 from last week, and a decrease of 94 from the corresponding period of last year. The decrease in typhoid fever of the previous week was maintained. The total number of cases reported reached 161, as compared with 231 for the previous week. The malady continues to prevail in the northeastern section of the city, where 60 per cent. of the entire number of new cases existed. The principal causes of death were: Typhoid fever, 23; diphtheria, 15; pulmonary tuberculosis, 52: cancer 27; apoplexy, 23; heart disease, 46; pneumonia, 53; enteritis, 24; Bright's disease, 45, and meningitis, 1. The total number of contagious disease cases reported was 280, with 42 deaths, as compared with 325 cases and 37 deaths for the preceding seven days.

## GENERAL.

**American Proctologic Society.**—The seventh annual meeting will be held at the Hotel Henry, Pittsburg, Pa., May 5-6, 1905. The secretary-treasurer is Dr. A. B. Cooke, Nashville, Tenn., and the chairman of the committee of arrangements is Dr. W. M. Beach, Pittsburg.

**The American Gastroenterological Association.**—The eighth annual meeting of this association will be held at the Academy of Medicine, New York City, April 24-25. An interesting program is announced. The annual dinner will be on the evening of the 24th. Dr. Charles D. Aaron, Detroit, is the secretary and treasurer.

**Meeting of Council on Medical Education.**—The conference of the Council on Medical Education of the American Medical Association will be held in Chicago, April 20, 10 a. m., at the Great Northern Hotel. Some of the questions to be considered at this meeting are: What shall be the standard for the recognition of medical colleges, and how shall such standard be determined? Reciprocal registration; preliminary education; curricula; examinations, and the subject of co-operation among licensing boards and the medical profession. All but 14 states have been heard from, so that the conference promises to be productive of much good.

**Conference of American Anatomists.**—On invitation of the Wistar Institute of Anatomy, ten of the leading anatomists of the United States met in a conference in Philadelphia with the manager of the Wistar Institute in the interests of anatomy in America, on April 11 and 12. The object of the conference was to discuss the possibility, advisability and means of organizing central institutes for the promotion of research in the different subdivisions of anatomy, such as physical anthropology, comparative anatomy, topographical anatomy, embryology, histology and neurology, and also to establish relationship with similar institutes abroad. This conference was brought about through the efforts of Dr. M. J. Greenman, director of the Wistar Institute. He proposes also to extend the usefulness of this institute along the lines for which it was founded. The splendid equipment of the Wistar Institute with its broad plan of foundation, its devotion to advanced work only, with no undergraduate teaching, have led anatomists to suggest possibilities in co-operative research work by utilizing this institution as a sort of anatomical center, where the committees may meet from time to time, the work be collated and correlated, where research material may be collected together, prepared for investigation and sent about the country to qualified investigators. The Wistar Institute stands unique in its position in the country to undertake and accomplish a national piece of work such as was proposed at this conference. If the plan is carried out it will do for all the great American universities certain important lines of work which no other institution could attempt. The following scientists were to be present: Dr. Lewellys F. Barker, professor of anatomy, University of Chicago; Dr. Edwin G. Conklin, professor of zoology, University of Pennsylvania, Philadelphia; Dr. Henry H. Donaldson, professor of neurology, University of Chicago; Simon H. Gage, professor of embryology, Cornell University, Ithaca, N. Y.; Dr. G. Carl Huber, professor of embryology, University of Michigan, Ann Arbor; Dr. George S. Huntington, professor of anatomy, Columbia University, New York; Dr. Franklin P. Mall, professor of anatomy, Johns Hopkins University, Baltimore; Dr. J. P. McMurrich, professor of anatomy, University of Michigan, Ann Arbor; Dr. Charles S. Minot, professor of embryology, Harvard University, Cambridge, Mass., and Dr. George A. Piersol, professor of anatomy, University of Pennsylvania, Philadelphia. It is expected that many other anatomists will participate in the work as soon as some definite plans of operation have been decided on. To begin the work, however, it was considered best to have only a few take part in the conference so that some conclusions might be quickly reached and some definite action taken. The guests were received by a committee consisting of General Wistar, the donor of the institute; Mr. Charles C. Harrison, president of the board of managers; Mr. Arthur E. Brown, vice-president of the Academy of Natural Sciences; Dr. John H. Musser of the University of Pennsylvania, and Dr. M. J. Greenman, director of the institute. No conference of the kind or for similar purposes has ever been held in the United States, and it is hoped by those interested that this may be the beginning of united efforts in co-operative research work in anatomy in America such as has been carried on so successfully abroad in astronomy for more than thirty years and in neurology and embryology for the past five years. It is unnecessary to comment on the co-operative plan in any line of work: the adoption of uniform methods, of uniform nomenclature, uniform weights and measures, the correlation of work as it progresses and its subdivision into specialties all tend to greater and better results.

## CANADA.

**Toronto Clinical Society.**—This society met for the first time in the new Ontario Medical Library Building, Toronto, on April 5. The three medical societies of Toronto now meet in these comfortable quarters, the other two being the Toronto Medical Society and the Toronto Pathological Society.

**Personal.**—Dr. Wiliam Canniff, one of the oldest practitioners in the province, has returned to reside in Toronto after an absence of 10 years. Dr. Canniff was licensed in 1854 for the old province of Upper Canada, and was the first professor of pathology in Canada, being connected with the old medical faculty, now defunct, of Victoria University. He was also Toronto's first medical health officer, a department which he organized for the city in 1883.——Dr. Brefney O'Reilly has returned to Toronto from Baltimore and will commence practice.——Dr. James Stewart, professor of medicine in McGill, and Dr. F. W. Campbell, dean of the medical faculty of Bishop's, Montreal, are recovering from serious illnesses.——Dr. J. D. Lafferty, Calgary, N. W. T., has been spending several weeks in Ottawa, Montreal and Toronto. Dr. Lafferty is spoken of in connection with the governorship of one of the two new provinces about to be created out of the Northwest Territories.——Dr. R. S. Thornton, Deloraine, Man., has decided to enter political life, having accepted the nomination for his county in connection with the local legislature of Manitoba.

## FOREIGN.

**Smallpox in Bombay.**—Smallpox is almost epidemic in Bombay. According to the *Public Health Reports*, the great danger lies in the fact that the natives do not fear the disease and expose not only themselves but others unconcernedly.

**International Antituberculosis Society.**—The general assembly of this society was held at Paris, March 14, when Dr. S. Bernheim presented an address on the present status of the crusade against tuberculosis. The officers of the society are at present Professor Lancereaux, president, with Huchard and Richelot of Paris, von Schrötter of Vienna, Hermann Weber of London and de Lancaster of Lisbon, vice-presidents, and Dr. G. Petit of Paris and Count Ivan Tolnewski of London, general secretaries.

**Epidemic of Cerebrospinal Meningitis in Germany.**—The epidemic of this disease in upper Silesia has included 1,200 cases in the Oppeln district, with a mortality of 50 per cent. The schools have been closed in the infected district and the houses disinfected. Circulars instructing the people how to ward off the disease and to prevent its spread have been distributed, and the cable brings word this week that the epidemic has begun to subside. Families that had sheltered vagabonds from Russia were the first affected.

**Second German Preventive Congress.**—The first congress of the German Society for Repression of Venereal Diseases was held at Frankfurt two years ago, and the second convened at Munich, March 17 and 18, 1905. The society now has 4,000 members and 21 local sub-societies, and the congress had a crowded attendance. Lesser and Blaschko of Berlin presided. The audiences included the general public, with a very large official and legal attendance. From the reports published in our exchanges we note that the congress unanimously voted that the obligation of professional secrecy should be binding on the officials and employes of the hospitals, insurance and similar societies the same as on physicians. Neisser is president of the society, and although he is now studying syphilis in Java, a communication was read from him. It urged that the regulations now in vogue for contagious diseases in general should be extended to include syphilis whenever the attending physician thinks there is danger to the public health in a special case. A prominent legal authority declared that professional secrecy should be maintained, but that the physician will find legal precedent for emancipating himself from the strict letter of the law when exceptional circumstances demand that he should speak. The law permits it if the patient consents. Others insisted that the physician's declaration was liable to do more harm, between husband and wife, for instance, than the disease itself. The discussions on the question of prostitution were animated, as eminent authorities hold opposite views on the question of housing and compulsory medical inspection.

## BERLIN LETTER.

### Berlin Views on the Cancer Question.

German medical men—at least those of Berlin—have been enjoying a violent stirring up of the seething cancer question. Each weekly meeting of the Berliner Medicinische Gesellschaft for three weeks was recently given up to a free discussion of the matter by the leading authorities, and the crowds attending the meetings gave evidence of the intense interest that the German practitioner takes in the progress of research. The hall of the society is large, seating about 500 persons, but at each meeting it was filled to the doors, about which a crowd surged as at the entrance to an American football game or horse show. Advocates of the parasitic theory, and the much more numerous skeptics, each presented his respective claims in full, and although, of course, no conclusions could be finally reached, yet the sentiments of German scientists, both laboratory and clinical, were fully shown.

The leader of the positive side of the discussion was the aged von Leyden, whose appearance before the society aroused great interest. He seemed inclined to admit that it was still impossible to bring forward conclusive proofs of what was to him a conviction, namely, the parasitic etiology of cancer. Clinical considerations afforded him many reasons for taking this view, in that the general features of the disease were those of an infectious malady—the attack of a previous healthy individual followed by progressive emaciation and exhaustion. All the facts that speak for a traumatic etiology speak equally for infection, since trauma always opens the way for infection; so, too, cancer occurs chiefly in places exposed to infection while in the deep-seated tissues, such as the liver and the kidney, it is relatively infrequent. Numerous reports of epidemics of cancer both in men and in animals, cancer *à deux*, successful inoculation of cancer from animal to animal, development of new growths along the track of the trocar used in aspirating cancerous fluid, all seem to him to indicate a true infection of a host by a parasite. Lastly we have the peculiar bodies that can be found in tumor cells and which seem to him incapable of being readily explained away as merely cell inclusions or as products of cell degeneration.

Orth gave a remarkably clear and forceful presentation of the other side of the question. Americans have recently had an opportunity of learning his views during his visit to the St. Louis Exposition, and of reading some of his conclusions (*Annals of Surgery*, 1904, xi, 773). His chief arguments were, first. that so far no satisfactory proof has been brought forward that cancers are of parasitic origin; and secondly, that there is no necessity for assuming a parasitic origin since every feature of their growth can be explained without such assumption, whereas many features of tumors are difficult if not impossible of explanation on the ground of the parasitic theory. The essential feature of all cancers seems to be the cancer cell, without which no secondary growths arise—every metastatic growth begins in such transported cancer cells and consists solely of the descendants of these cells, not of cells derived from the affected organ. Herein lies the fundamental difference between cancer and such diseases as tuberculosis and syphilis, with which cancer is often compared in urging an infectious theory—in all the infectious granulomas the secondary growth consists of products of multiplication of the infected organ itself, and not of tissue cells brought from the primary site. Hence an analogy between infectious granulomas and cancer can not be accepted as supporting the parasitic theory. Likewise the successful transplantation of cancer from animal to animal is no evidence of infectious origin, since in each case cancer cells are transplanted and it is through multiplication of these transplanted cells that the new growth arises—a transplanted cancer is the same as any other metastasis, and no proof of infectiousness. If there is any parasite of cancer, Orth believes that it is the cancer cell itself and not a foreign organism. What have so far been described as parasites in cancer cells are as yet far removed from being a sufficient ground for scientific theories, and in his opinion "the parasitic theory of carcinoma is still completely in the air."

Von Hansemann also took the ground that inoculation experiments were of little positive value so long as they were not made with substances free from cancer cells. The so-called cancer parasites that he has seen demonstrated have never been at all convincing. The idea of hereditary influence is based on altogether untrustworthy evidence, and the so-called epidemics of cancer are so rare as to readily fall under the laws of chance. He also spoke of the danger that a premature belief by the public in an infectious origin for cancer might result in unnecessary hardships for the victims of the disease, as has so often happened with consumptives. His special point was the fallacy of speaking of a single cancer etiology, for he believes it probable that there may be many causes for cancer active in different cases; for example, it is quite probable that the etiology is different in an acute round-cell sarcoma following a blow on the testicle, in a malignant teratoma of the ovary, and in a slow-growing epithelioma of the skin in the aged. In the discussion, which occupied an entire evening, various minor points were added. but nothing of essential importance. From the trend of the discussion, and the comments and attitude of the audience, it seemed that the general sentiment was not far different from that expressed by Orth, namely, that while as yet the parasitic origin of cancer can not be dismissed as unworthy of careful consideration, yet so far it rests on slight and generally unsatisfactory evidence, and on the other hand it is quite unnecessary to assume the presence of parasites to explain all the known features of cancers.

## LONDON LETTER.

### The Crusade Against Consumption.

The sixth general meeting of the National Association for the Prevention of Consumption and Other Forms of Tuberculosis was held under the presidency of the earl of Derby. According to the report, the expenses have considerably exceeded the income for the year. The next International Tuberculosis Congress will be held at Paris in October, and the aid of the association has been sought by the authorities of the congress. Activity has been displayed throughout the country in the foundation of sanatoria for the treatment of consumption. Tuberculosis in children, especially the surgical forms, has engaged the attention of the association. This country lags behind some others in provision for such children; there is practically only one sanatorium where they can be received. Some of the speakers insisted on the fact that sanatorium treatment could not be expected to be beneficial if cases were not sent in the early stage. Sir William Broadbent moved that in the interest of the public health tuberculosis should be dealt with in a comprehensive manner and that this would be done most efficiently by the Metropolitan Asylums Board constituting itself the sanatorium authority for consumption in London. At present this board is the authority which controls all the fever hospitals of the metropolis. Sir William said that there is an enormous amount of tuberculosis disease in London, mainly in the lower classes. This is a source of danger to others. In poor law infirmaries the hopeless cases ought to be absolutely segregated. If the Metropolitan Asylums Board would undertake to deal with consumption which, to a certain degree, is a contagious disease, they would make a distinct impression on the amount which exists in London.

### The Polyclinic.

At the annual meeting of the Medical Graduates' College and Polyclinic a very gratifying report was presented. The register now stands as follows: Life members, 48; members, 136; subscribers, 675; temporary subscribers, 12. Twelve hundred and twenty-five cases of disease, many of them of extreme rarity and interest, were shown at the clinics. During the year the attendances of physicians at the clinics amounted to 13,471. Four sessions of practical classes, each of six weeks' duration and a vacation course of three weeks in September, were held, and were attended by 192 physicians. Three hundred and forty-seven clinical investigations were carried out in the laboratory. This department of the college is receiving steadily increasing support, and it is hoped that soon the fees from this source will form a valued addition to the income. Many welcome additions have been made during the year to the Hutchinson Museum, and the whole collection has been classified and arranged so as to permit of speedy and easy reference. The decision of the council to abolish the special fee of one guinea charged for attendance at the composite course of lectures on medicine and surgery and the allied sciences has been much appreciated by the subscribers, many of whom have increased their annual subscription as a token of their satisfaction. Four lectures are delivered weekly by the most eminent teachers, not only of London, but of the whole kingdom. A special feature of the year's work was a course of six practical demonstrations on clinical methods of estimating the blood pressure, which was given by Dr. George Oliver. The financial position of the college had been for some time very difficult, but is now much more satisfactory. For the first time the year has closed with a credit balance.

### Municipal Milk Depots: The Abolition of Sterilization of Milk.

The movement for the supply of milk by municipal authorities is increasing. Its *raison d'etre* is the impossibility of the poorer classes obtaining good and "clean" milk through the ordinary commercial sources. A conference on municipal milk depots and milk sterilization has been held at the Royal Sanitary Institute. The first municipal milk depot was opened at St. Helen's in 1899, and since then depots have been opened at Liverpool, Ashton-under-Lyne, Dukinfield, Battersea, Leith, Bradford, Dundee, Glasgow and Burnley.

### The Increase of Lunacy in Scotland.

From time to time we have called attention in The Journal to the alarming increase of lunacy in the United Kingdom and have given figures dealing with England and Ireland. In a paper on the subject read at the Glasgow Eastern Medical Society Dr. W. A. Parker has dealt specially with Scotland. In the United Kingdom 1.86 insane persons per 1,000 of population were registered insane in 1862; the figure was 3.58 in 1902. In Scotland 5,824 lunatics were registered in 1848; in 1904 the number was 16,894. Thus the number of lunatics increased by 180 per cent. while the population increased by only 52 per cent. There is one hopeful fact, however, which suggests that the increase may have reached its limit; in 1892 the insane numbered 250 per 100,000 of the population; in 1904 the number was a little less—245. This is the first time that any check has occurred in the increase. Several explanations of the increase of lunacy have been given 1. In 1857, when district asylums were first instituted by parliament (owing to dissatisfaction with the treatment of lunatics in workhouses), a great impulse was given to the better care of the insane. This led to the gathering into asylums of many weak-minded persons who had been cared for in their own homes and were then for the first time registered as insane. Thus the increase so produced is only a registered one and does not represent a real increase. 2. There is a steady tendency of the rural population to drift toward the larger towns and many weaklings and senile patients who would be cared for by their friends in quiet country places are sent to asylums. This again does not represent a real increase. A true increase is represented by the increase of general paralytics in the asylums. 3. The death rate of the inmates of asylums, in consequence of hygienic improvements, has diminished, which results in a greater number of registered lunatics.

## Correspondence

### A Just Protest.

Fall River, Mass., March 31, 1905.

*To the Editor:*—On advertising page 35 of The Journal, Jan. 28, 1905, is an advertisement of W. C. Abbott, M.D., of Chicago, entitled "Doctor, Do Your Pneumonia Cases Die? Mine Do Not. I Have Paid for This Space and I Want You to Read What I Have to Say." I have just received this week a brochure entitled "Pneumonia, a Modernized Successful Treatment," by W. C. Abbott, M.D., Chicago, 1905, starred "From the Journal of the American Medical Association." Anyone not having seen the article in The Journal would be led to suppose that this article was one of the regular contributed articles of The Journal of the American Medical Association, instead of being strictly advertising matter.

With the correctness or not of Dr. Abbott's views I am not at present concerned. I wish, however, as a member of the American Medical Association, to protest, and I wish The Journal to protest against anybody, especially a man of the prominence of W. C. Abbott, sending forth as advertising matter an article purporting to be original matter from The Journal of the American Medical Association. It is true that it did come from The Journal of the American Medical Association, but it is one of those truths that is at the same time a lie, or a lie that is at the same time a truth.

I would request that you call attention to this in The Journal. Geo. L. Richards.

[Dr. Abbott's attention was called to this matter, and he has readily agreed to destroy the reprints in hand.—Ed.]

### American Anti-Tuberculosis League.

Atlanta, Ga., April 9, 1905.

*To the Editor:*—Our southern papers, especially those of Atlanta, are filled with announcements of the coming meeting of the "Anti-Tuberculosis League" which convenes in this city on the 17th, 18th and 19th of this month. The city council has voted $500.00 for their entertainment, and it is announced that there will be representatives from all the foreign countries, besides representatives from every state in the Union appointed by the governors. Since very few of the profession know the standing and status of this "Anti-Tuberculosis League" and since such an international convention will assemble so soon in this portion of the South, it has seemed strange that The Journal, representative of the medical profession of the United States, has not made some mention of this meeting and the profession thus made cognizant of such an important international event. Dr. Geo. Brown of this city is the president, and the papers announce that the attendance will be over one thousand. Will you kindly let your readers know something positive about this league?

Dunbar Roy, M.D.

### An Appeal.

Baltimore, April 6, 1905.

*To the Editor:*—Would it in any way be contrary to the policy of The Journal to insert the following statement? One of the best known physicians of this country, a woman who has given her life to the arduous duties of the profession, as well as to work in numerous charitable associations, especially in those which are helpful to women, has suddenly been thrown out of a life of great activity and usefulness into one of absolute inactivity and dependence. The medical profession of Chicago, and I think of the country at large, will know well to whom I refer without my mentioning her name. It is my desire to raise a fund for her relief for the remainder of her days, and to this end I solicit subscriptions (to be sent to me personally), which will be applied for her relief. It is a pleasure to head the list with $100.00.

Howard A. Kelly.

### Typhoid Fever.

Baileyville, Ill., April 8, 1905.

*To the Editor:*—The article on typhoid fever by Dr. Robin of Wilmington, Del., in The Journal April 8, 1905, leads me to quote from "Report on the Origin and Spread of Typhoid Fever in U. S. Military Camps During Spanish War of 1898." The letter of transmittal states that data "furnish most positive proof that the dissemination of typhoid fever in the military camps in 1898 was largely from person to person by contact and not through infected food or water." The study of the conditions prevalent at Jacksonville convinced the board that there, at least, water was not responsible for the epidemic; then the inspection of the recently abandoned camps at Chickamauga plainly told the truth, and the fact that the most potent factor in the spread of typhoid fever in the camps was the pollution of the soil, of the feet, clothing, bedding, tentage, etc., was made evident, and the necessity for disinfection was pointed out in a way that could not be misunderstood.

Edwin A. Carpenter.

## Marriages

B. Morgan Parker, M.D., to Miss Edna Merrell, both of Detroit, Mich., April 12.

Rudolph F. Harriman, M.D., to Miss Gretchen W. Fischer, both of Brooklyn, N. Y., April 5.

Lawrence P. Crawford, M.D., Earlville, Ill., to Miss Ruth Dixon of Fairview, Ill., March 22.

Gurdon Potter, M.D., Trenton, N. J., to Regina Flood Keyes, M.D., of Buffalo, N. Y., March 18.

Homer H. Wheeler, M.D., Indianapolis, Ind., to Miss Alice Garver Gladden of Memphis, Tenn., April 5.

William Engelbach, M.D., Arenzville, Ill., to Miss Fama L Reynolds of Barry, Ill., at Quincy, Ill., March 27.

George Miller MacKee, M.D., New York City, to Miss Anna Laura Beegle of Far Rockaway, N. Y., March 22.

## Deaths

**Albert Kimberly Hadel, M.D.** University of Maryland School of Medicine, Baltimore, 1889, a member of the American Medical Association, the Medical and Chirurgical Faculty of Maryland; registrar, historian and president of the Maryland Society Sons of the American Revolution; registrar general of the national body Sons of the American Revolution; president of the Maryland Society of the War of 1812; a well-known speaker and writer on historical subjects; a specialist on diseases of the nose and throat, died at his home in Baltimore, April 4, from cerebral hemorrhage, after an illness of four months, aged 54. He served at one time as secretary of the Baltimore Board of Health. Among the pallbearers at his funeral were Drs. Nicholas M. Dashiell, James D. Iglehart, Alexander D. McConachie, Charles E. Sadtler and Eugene F. Cordell.

**Samuel Davies Drewry, M.D.** Medical College of Virginia, Richmond, 1854, assistant surgeon in the Confederate Navy during the Civil War, died at his home in Centralia, Chesterfield County, Va., April 2, from nephritis, after an illness of several months, aged 72.

**Peter Nelson Jacobus, M.D.** University of Vermont Medical Department, Burlington, 1885, a member of the Medical Society of the State of New Jersey, died at his home in Washington, N. J., March 28, after a short illness, from debility following influenza, aged 71.

**William S. Walker, M.D.** College of Physicians and Surgeons, Keokuk, Iowa, 1877, surgeon of the St. Louis, Iron Mountain

& Southern Railway at Hot Springs, Ark., died at St. Mary's Hospital, Rochester, Minn., March 31, a short time after a surgical operation.

**John D. Paige, M.D.** Harvard University Medical School, Boston, 1888, of Savannah, Ga., a member of the Medical Association of Georgia, and a specialist in diseases of the eye, ear, nose and throat, died in Salt Lake City, Utah, March 28, aged about 45.

**George W. Purnell, M.D.** Department of Medicine of the University of Pennsylvania, Philadelphia, 1858, surgeon in the Confederate service during the Civil War, died suddenly at his home in Hazlehurst, Miss., April 4, from heart disease, aged 68.

**Randolph N. Seaver, M.D.** University of Wooster Medical Department, Cleveland, 1874, some-time mayor of Corry, Pa., died at his home in that city, April 3, from cerebral hemorrhage, after an illness of only a few hours, aged about 60.

**Evan E. Hughes, M.D.** Medical College of Ohio, Cincinnati, 1872, a member of the American Medical Association, died at his home in Oak Hill, Ohio, March 28, from cerebral hemorrhage, after an illness of only a few hours, aged 59.

**William M. Linquist, M.D.** San Francisco, 1896, for several years surgeon on the Pacific Mail Steamship Company's boats between San Francisco and Panama, died at his home in Ukiah, Cal., March 23, from pneumonia, aged 34.

**Edwin Tomlinson, M.D.** Jefferson Medical College, Philadelphia, 1872, some-time coroner of Camden County, N. J., and postmaster of Gloucester City, died at his home in that city, March 29, after a lingering illness, aged 65.

**Rachel Brooks Gleason, M.D.** New York Medical College, New York City, 1851, for many years in charge of the Elmira Water Cure, died at the home of her daughter in Buffalo, N. Y., March 13, aged 84.

**Fletcher S. Dillman, M.D.** Missouri Medical College, St. Louis, 1898, who was thrown from a buggy March 26, died at his home in Ingraham, Ill., April 4. He did not regain consciousness after the injury.

**Samuel Tyler Miller, M.D.** Department of Medicine of the University of Pennsylvania, Philadelphia, 1850, formerly judge of Gloucester County, N. J., died at his home in Paulsboro, N. J., April 3, aged 78.

**Rufus P. Grindle, M.D.** New York University, New York City, 1872, who served in both houses of the state legislature, died at his home in Bluehill, Hancock County, Maine, March 28, aged 59.

**John Wesley Martin, M.D.** University of Louisville (Ky.) Medical Department, 1879, died at his home in West Plains, Mo., March 26, from cancer, after an illness of several months, aged 52.

**John W. Hamilton, M.D.** Tulane University of Louisiana Medical Department, New Orleans, 1887, died at his home in Lampasas, Texas, March 29, after an illness of one month, aged 45.

**Dennis F. Smith, M.D.** Jefferson Medical College, Philadelphia, 1881, of Plymouth, Pa., died in the Hospital for the Insane at Retreat, Pa., March 25, after an illness of two years, aged 54.

**Theodoric F. C. Dodd, M.D.** University of Michigan Department of Medicine and Surgery, Ann Arbor, 1857, died at his home in Altoona, Pa., March 8, aged about 70.

**Silas B. Kash, M.D.** Hospital College of Medicine, Louisville, 1898, died at his home in Burdette, Mo., March 26, from pneumonia, after an illness of ten days, aged 33.

**Justus Sutliffe, M.D.** New York University, New York City, 1885, died at his home in Nanticoke, Pa., April 3, from pneumonia, after an illness of a week, aged 57.

**William L. Coleman, M.D.** Medical College of Georgia, Augusta, 1857, an expert on yellow fever, died at his home in Houston, Texas, Nov. 27, 1904, aged 77.

**Louis Gotthelf, M.D.** University of Berlin, Germany, 1846, founder of St. Mary's, S. D., died at his home in Parker, S. D., April 2, from senile debility, aged 85.

**Malcolm R. Clark, M.D.** Medical Department of the University of the South, Sewanee, Tenn., 1894, died at his home in Pontotuc, Miss., February 16.

**Granville A. Newlon, M.D.** Examination, W. Va., 1861, died at his home in Buckhannon, W. Va., April 1, from pneumonia, after a short illness, aged 68.

**W. A. Houck, M.D.** Examination, Ark., of Rhea, Ark., a Confederate veteran, died at Prairie Grove, Ark., March 14, from nephritis, aged 60.

**Winfield Scott Scurlock, M.D.** Medical College of Ohio, Cincinnati, 1883, died suddenly at his home in New Holland, Ohio, March 31.

**John S. Chapel, M.D.** University of Buffalo (N. Y.) Medical Department, 1865, died at his home in South New Lyme, Ohio, March 27.

**Fred Sauerbrie, M.D.** Albany (N.Y.) Medical College, 1895, died suddenly at his home in Clarksville, N. Y., April 2, aged 38.

**Henry F. Wildasin, M.D.** Cincinnati, 1872, died at his home in Plattsburg, Ohio, March 28, from septicemia, aged 67.

**Henry W. Haldeman, M.D.** Chicago Medical College, 1879, died recently at his home in Girard, Kan.

## *Queries and Minor Notes*

ANONYMOUS COMMUNICATIONS will not be noticed. Queries for this column must be accompanied by the writer's name and address, but the request of the writer not to publish his name will be faithfully observed.

### NURSING FROM AN INFECTED BREAST.

————————, WASH., April 4, 1905.

*To the Editor:*—Is acute mastitis a contraindication for nursing? I was called to see a patient who complained of chilliness, loss of appetite and headache; her temperature was 102; pulse, 95. Her right breast was painful, swollen a little, but not red or edematous. Pressure was painful; nursing did not pain her. I applied a hot clay mixture poultice. The next day the breast was better, temperature normal, patient feeling better, and everything appeared favorable. Suppuration did not take place. *The baby had been allowed to nurse during this time.* The baby had been troubled with constipation some, though I never prescribed for the baby. Next day after mother was better; the baby had what the father called a bad attack of colic. They called a physician from another town, and the next morning the child was dead. The father said the abdomen swelled up considerably, though he did not think the baby very serious. The baby was about two weeks old. The physician from the other town claimed that it was the milk from the breast that I had been treating that killed the baby. Is that probable? Tillman says to let the baby nurse. Holt does not give it among his contraindications. Was my treatment correct? *Or should I have been condemned, as I was by the physician* that treated the case, for allowing the baby to nurse? B.

ANSWER.—There is no reason for holding that the milk from the infected breast killed the baby. Without a postmortem examination or a more detailed history it is impossible to state the cause of death. There may have been an intussusception of the bowels. A slight mastitis, such as described here, is probably of lymphatic origin, the lactiferous ducts do not become involved, and there are no pus cells in the secretion. It is, as a rule, better to put the breast at complete rest by applying a good supporting bandage and stopping nursing. The stimulation or irritation of the breast by nursing tends to prevent rapid control of the inflammation, and so nursing is contraindicated because of the mother, not on account of the child. In two or three days, or as soon as all tenderness has disappeared, nursing may be resumed. In the other form of mastitis, where there is inflammation of the lactiferous duct, which is characterized by a slower onset and by the presence of pus in the milk, there is more theoretical objection to nursing, but practically the same rule—let the child nurse as soon as fever subsides and local tenderness disappears—leads to no bad results.

### INSECT POWDER AT PANAMA.

BEREA, IOWA, April 7, 1905.

*To the Editor:*—In THE JOURNAL, April 1, p. 1055, I notice that large quantities of "insect powder" is being used on the Isthmus. Can you tell me what its composition is and where it can be obtained and its probable cost per pound?

FRANKLIN T. DE WITT.

ANSWER.—This "insect powder" is probably pyrethrum—Persian or Dalmatian insect powder. This is much used by the United States Public Health and Marine-Hospital Service (see THE JOURNAL, July 9, 1904, p. 117). The Persian powder consists of the flowers of *Chrysanthemum roseum* and other allied plants growing on the Caucasian Mountains and in northern Persia. These are now being raised in large quantities in this country. The powder is obtainable at any drug store for from 15 to 25 cents per pound, and in large quantities for much less.

# State Boards of Registration

## COMING EXAMINATIONS.

Kansas State Board of Medical Registration and Examination, Kansas City, April 25-26. Secretary, G. F. Johnston, M.D., Lakin.

Board of Medical Examiners for the State of Texas, Austin, May 2. Secretary, M. M. Smith, M.D., Austin.

Indiana State Board of Medical Registration, State House, Indianapolis, May 2-4. Secretary, W. T. Gott, M.D., Crawfordsville.

Louisiana State Board of Medical Examiners, New Orleans, May 4-5. Secretary, Felix A. Larue, M.D., New Orleans.

Mississippi State Board of Health, Jackson, May 9-10. Secretary, J. F. Hunter, M.D., Jackson.

New York State Homeopathic and Eclectic Boards, New York, Albany, Syracuse and Buffalo, May 16-19. Chief of Examinations Division, Charles F. Wheelock, State Capitol, Albany.

Board of Medical Examiners of the State of North Carolina, May 17. Secretary, George W. Pressly, M.D., Charlotte, N. C.

Massachusetts Board of Registration in Medicine, State House, Boston, May 9-10. Secretary, Edwin B. Harvey, M.D., Room 159, State House, Boston.

## New Colorado Medical Act.

The new Colorado Board of Medical Examiners, recently provided for, consists of nine members, appointed by the governor, to hold office for six years. When an applicant for a license offers to the board satisfactory proof that he has complied with the educational requirements specified he is entitled to a license without examination; provided, that graduates in medicine, after Jan. 1, 1900, must have attended not less than four full courses of instruction in four separate years in a reputable medical school. Each applicant is required to name his system of practice, and no person is allowed to use the name of any system unless he holds a certificate from the state association of such system. Candidates whose credentials are not approved are subjected to an examination in anatomy, physiology, chemistry, symptomatology, toxicology, pathology, surgery and obstetrics (exclusive of materia medica and therapeutics). The credentials of applicants relating to their general reputation, their preliminary education and the courses of study they have pursued, the degrees they have received, their experience in general hospitals, medical department of the Army, Navy and Public Health and Marine-Hospital Service, licenses granted by other states and countries, and their experience as teachers of medicine, are given due consideration by the board in conducting its examination. The board is given power to revoke a license obtained by the employment of fraud or deception, either in passing the examination, the assumption of a false name for the personification of another practitioner of a like or different name; for the conviction of a crime involving moral turpitude; habitual intemperance to such an extent as to incapacitate for performance of professional duties; the procuring or aiding or abetting in procuring a criminal abortion; misrepresentations to the public and circulation of vicious or obscene advertisements. The board meets in Denver on the first Tuesday of January, April, July and October of each year.

**Maine March Report.**—Dr. William J. Maybury, secretary of the Board of Registration of Medicine of Maine, reports the oral and written examination held at Portland, March 28, 1905. The number of subjects examined in was 10; number of questions asked, 100; percentage required to pass, 75. The total number of applicants examined was 11, of whom 10 passed and 1 failed. The following colleges were represented:

PASSED.

| College | Year Grad. | Per Cent. |
|---|---|---|
| Medical School of Maine | (1904) | 88.6 |
| College of P. & S., Boston | (1903) 84.5; (1904) | 83.4 |
| College of P. & S., Baltimore | (1904) | 90.5 |
| College of P. & S., New York City | (1901) | 96.8 |
| Laval University, Montreal | (1903) 84.6; (1904) | 88.3 |
| University of Pennsylvania | (1899) | 94.7 |
| Faculty of Medicine, Paris | (1903) | 90.3 |
| Bishop's College Medical Faculty | (1897) | 92.9 |

FAILED.

| | | |
|---|---|---|
| Baltimore University School of Medicine | (1904)* | |

* Withdrew from examination.

**Oklahoma March Report.**—Dr. J. W. Baker, secretary-superintendent of the Territorial Board of Health of Oklahoma, reports the examination held March 29, 1905. The number of subjects examined in was 9; number of questions asked, 90, and percentage required to pass, 66.6. Twenty-one persons were examined, of whom 9 passed and 12 failed. The following questions were asked:

### SURGERY.

What is inflammation? Name the varieties of inflammation encountered in our general practice. What is suppuration, a phlegmonous and a tuberculous abscess? Give the effects and treatment of primary, recurrent and secondary hemorrhage. Give symptoms and treatment of concussion and compression of the brain, and state what you would do to tap the lateral ventricle. What would induce you to do a colotomy, and where would you make your opening—right or left inguinal or lumbar region? Describe a compound dislocation and compound fracture and state what joint is most frequently affected with above dislocation. Give signs of a fracture, dislocation and reduction. What is a Colles and what a Potts fracture? Give a general treatment for fractures; also give treatment for ununited fracture. When does excision or resection become necessary, and why do you choose excision in place of amputation? Write a short article on asepsis and antisepsis.

### ANATOMY.

Name and give the number of bones in the upper and lower extremities. Give the composition of bone and name the unclassified bones. Give number and varieties of motion in joints and structures entering into the formation of joints. Name the muscles in the male and female perineum. Why do they differ? What branches of arteries form the circle of Willis? What veins carry arterial blood and what veins have no valves? From what plexus of nerves is the spermatic plexus formed and what is this plexus called in the female? Give the structure and uses of the pharynx and esophagus. Name and give the number of apertures in the walls of the abdomen. Give the structure and uses of the liver and pancreas.

### PHYSIOLOGY.

Give the physiologic properties of protoplasm. Give the physical and physiologic properties of connective tissue. What is intestinal digestion? How is absorption of food accomplished? How are the changes in the air effected by respiration? Name and describe the principal excrementitious fluids of the body. What are and where will you find the appendages of the skin? Give the physiologic cause of sleep. How long does it require the blood to make a complete circuit of the vascular system? Give the vital capacity of the lungs and give the functions of the iris.

### CHEMISTRY AND URINALYSIS.

What is matter? In how many forms does it exist? Classify elements and name five most abundant in nature. Distinguish an organic acid; an inorganic acid. Give five examples of each. Give chemical antidote for carbolic acid, arsenic, corrosive sublimate. What results from triturating sulphur and potassium chlorate? From adding potassium permanganate to sulphuric acid? Give chemical formulæ of hydrochloric acid, magnesium sulphate, calomel, water, corrosive sublimate. Give chemical name of Epsom salts, cream of tartar, rochelle salts, lime salt. Describe normal urine and name four of its constituents. Give in detail the heat test for albumin, nitric-acid test. Give in detail a reliable test for sugar in the urine.

### MATERIA MEDICA AND THERAPEUTICS.

Define materia medica, therapeutics, menstruum, collyrium, excipient. Define alkaloid, resin, tincture, fluid extract. Define ointment, liniment, plaster, cerate. Give source, physiologic action and therapy of glycerin. Give therapeutic uses of four mineral acids. What anesthetic do you use and why do you prefer it? Give indications for four remedies used in each of the following diseases: Malaria, la grippe, bronchitis. Give source, physiologic action, officinal preparations, therapy and dose of each of the following: Aconite, strychnin, cinchona flava.

### OBSTETRICS AND GYNECOLOGY.

Define menstruation, ovulation, conception. Give frequency of menstruation, period of quickening, duration of pregnancy. Give visible signs of pregnancy. Give causes and treatment of antepartum hemorrhage and postpartum hemorrhage. Describe in detail the repair of a laceration of the perineum involving the floor of the vagina. Describe the application and use of the obstetric forceps. Under what conditions would you be justified in inducing premature labor? What anesthetic would you use in labor? Name some of the uses and abuses of irrigation during pregnancy and after labor. Give treatment of threatened abortion.

### PRACTICE OF MEDICINE.

What are the most frequent complications and sequelæ of scarlatina? Give causes, symptoms and treatment of simple catarrhal jaundice. Give causes and treatment of croupous pneumonia. Define the term glossitis and give symptoms and treatment. What are the causes of acute parenchymatous nephritis? What is the differentiation of pericarditis from pleuritis? Give the treatment of typhoid fever and state briefly the measures to prevent infection. Give symptoms, management and treatment of smallpox. Give in detail the early diagnosis of tuberculosis of the lungs, and briefly, the treatment. Give the treatment of gastric ulcer with hematemesis.

### PHYSICAL DIAGNOSIS.

Differentiate compression of the brain from injury and from the phenomena of alcoholism. Give the physical signs of the most usual valvular lesion of the heart. Give causes and symptoms and prognosis of cardiac dilatation. Give the diagnostic points in variola and in varicella, in regard to (a) the location of the skin lesion (b) the character of the skin lesion, (c) the time that elapses between the onset of the disease and the appearance of the skin lesion. Define and differentiate between illusion, delusion and hallucination. Define vertigo and give causes. Define fever. What is the normal temperature of the human body? Mention the sequelæ of measles and give treatment of them. Give differential diagnosis of measles and scarlet fever. Differentiate between typhoid and malarial fevers.

### MEDICAL JURISPRUDENCE AND TOXICOLOGY.

Is a physician obliged to attend a patient who sends for him? What signs justify a physician in swearing that a woman is pregnant? What is the poisonous principle in rough on rats, in paris green, in verdigris, in oil of almonds? Of what does medical jurisprudence treat? State the difference between criminal and civil malpractice. Give the symptoms of poisoning by arsenic and the treatment for same. What organs are diseased by alcoholism or poisoning by alcohol? Make an autopsy for the purpose of examination for strychnin poisoning. At what stage of intrauterine life does the fetus become viable? Differentiate abortion from miscarriage.

# The Public Service

## Army Changes.

Memorandum of changes of stations and duties of medical officers, U. S. Army, week ending April 8, 1905:

Kulp, John S., asst.-surgeon, relieved from duty in Department of California, and ordered to Philippine Islands for duty, to sail on transport April 30, 1905.

Adair, George W., deputy surgeon general, left St. Paul, Minn., on thirty days' leave of absence.

Frick, E. B., surgeon, to take charge of C. S. O., Department of Dakota, during chief surgeon's absence on leave.

Manly, C. J., asst.-surgeon, relieved from duty at Fort Brady, Mich., and ordered to Fort Yellowstone, Wyo., for duty.

Usher, F. M. C., asst.-surgeon, relieved from duty at Fort Yellowstone, Wyo., and ordered to Fort Brady, Mich., for duty.

Carter, Edward C., surgeon, relieved from further duty in the Philippines Division, and ordered to Washington, D. C., to report in person to the Military Secretary for further orders.

Wells, George M., surgeon, retired from active service.

Maur, L. M., deputy surgeon general, returned to Fort Riley, Kan., from sick leave.

Girard, A. C., brigadier general, appointed as such to rank from April 6.

Maus, L. M., deputy surgeon general, relieved from duty at Fort Riley, Kan., and ordered to San Antonio, Texas, for duty as chief surgeon of that department.

Edie, Guy L., surgeon, ordered to report to Secretary of War for duty as attending surgeon, to accompany him to the Philippine Islands and return to this city.

Birmingham, H. P., surgeon, ordered to make medical and sanitary inspection at Forts Clark and Bliss, Texas, Forts Sill and Reno, Oklahoma Territory, and Fort Logan H. Roots, Arkansas.

Rockhill, E. P., asst.-surgeon, granted thirty days' sick leave of absence with permission to apply for thirty days' extension.

Porter, Elias H., de Krafft, S. Chase, and Kellogg, Preston S., contract surgeons, and Casaday, George H., dental surgeon, sailed from San Francisco, Cal., for the Philippines, on the transport *Thomas*.

Rebert, Michael A., contract surgeon, left Fort Totten, N. Y., on leave of absence for ten days.

Peddicord, Harper, contract surgeon, granted leave of absence for three months.

Hallwood, James B., contract surgeon, returned from World's Fair Grounds, St. Louis, Mo., to his proper station, Fort Leavenworth, Kan.

Adair, George F., contract surgeon, returned to duty at Fort Wadsworth, N. Y., from leave of absence.

## Navy Changes.

Changes in the medical corps, U. S. Navy, for the two weeks ending April 8, 1905:

Field, J. G., surgeon, appointed surgeon from March 3, 1905.

Farwell, W. G., medical director, retired from active service in accordance with the provisions of Section 1444, Revised Statutes, April 5, 1905, on which day he will have reached the age of 62 years.

Fitts, H. B., surgeon, detached from the *Buffalo* when placed out of commission and ordered to the *Lawton*.

Guthrie, J. A., surgeon, commissioned surgeon with rank of lieutenant commander from Dec. 15, 1904.

Orvis, R. T., surgeon, commissioned surgeon with rank of lieutenant commander from Jan. 1, 1905.

Clifford, A. B., asst.-surgeon, detached from the Naval Museum of Hygiene and Medical School, Washington, D. C., and ordered to the Navy Yard, New York, N. Y.

Miller, J., Jr., asst.-surgeon, detached from the *Buffalo* when placed out of commission, and ordered to the *Lawton*.

Desses, P. T., asst.-surgeon, detached from the *Kentucky* and ordered to the Naval Hospital, Norfolk, Va., for treatment.

Freemen, G. F., P. A. surgeon, ordered to the Naval Station, Olongapo, P. I.

Cowan, J., pharmacist, retired, ordered to the Naval Recruiting Station, New York, N. Y.

## Public Health and Marine-Hospital Service.

List of the changes of station and duties of commissioned and non-commissioned officers of the Public Health and Marine Hospital Service for the seven days ending April 5, 1905:

Godfrey, John, surgeon, granted leave of absence for one month from April 15.

Magruder, G. M., surgeon, relieved from duty at Cincinnati, Ohio, and directed to proceed to San Francisco, assuming command of the service, and relieving P. A. Surgeon W. G. Stimpson.

Young, G. B., P. A. surgeon, detailed to represent the service at the meeting of the Council on Medical Education of the American Medical Association at Chicago, April 20.

Stimpson, W. G., P. A. surgeon, on being relieved at San Francisco, by Surgeon G. M. Magruder, to proceed to Port Townsend, Wash., assuming command of the service, and relieving P. A. Surgeon D. E. Robinson.

Nydegger, J. A., P. A. surgeon, granted leave of absence for one day, March 6.

Parker, H. B., P. A. surgeon, granted leave of absence for six days from April 2, 1905, under Paragraph 191 of the Regulations.

Billings, W. C., P. A. surgeon, granted leave of absence for one day, March 23.

Billings, W. C., P. A. surgeon, granted leave of absence for six days from April 5.

Robinson, D. E., P. A. surgeon, on arrival at Port Townsend, Wash., of P. A. Surgeon W. G. Stimpson, to report to him for duty and assignment to quarters.

Warren, B. S., asst.-surgeon, granted leave of absence for four days from April 3.

Collins, G. L., asst.-surgeon, granted leave of absence for seven days from March 31, 1905, under Paragraph 191 of the Regulations. Granted five days' extension of leave of absence from April 6.

Bailey, C. W., acting asst.-surgeon, granted leave of absence for four days from April 10.

Bean, L. C., acting asst.-surgeon, granted leave of absence for two days.

Brown, B. J., Jr., acting asst.-surgeon, granted leave of absence for two days from April 4.

Keatley, H. W., acting asst.-surgeon, granted leave of absence for four days from March 29, under Paragraph 210 of the Regulations.

McCormack, J. T., acting asst.-surgeon, granted leave of absence for five days from April 4.

Stevenson, J. W., acting asst.-surgeon, to assume temporary charge of the service at Cincinnati, granted leave of absence for thirty days, on account of sickness, from February 27.

Walker, R. T., acting asst.-surgeon, granted leave of absence for twenty days from March 30.

## Health Reports.

The following cases of smallpox, yellow fever, cholera and plague have been reported to Surgeon General, Public Health and Marine-Hospital Service, during the period from March 24 to April 8, 1905:

### SMALLPOX—UNITED STATES.

District of Columbia: Washington, March 18-25, 3 cases.

Florida: Jacksonville, March 18-April 1, 7 cases; West Tampa, March 18-25, 5 cases.

Illinois: Chicago, March 18-April 1, 54 cases, 2 deaths; Danville, March 11-25, 7 cases, 4 deaths; Cairo, March 28, 7 cases.

Kentucky: Covington, March 25-April 1, 1 case.

Louisiana: New Orleans, March 18-25, 16 cases; 4 imported.

Michigan: Detroit, March 18-25, 1 case.

Missouri: St. Louis, March 18-April 1, 75 cases, 4 deaths.

Nebraska: March 18-25, Omaha, 1 case; South Omaha, 1 case.

New York: New York, March 25-April 1, 1 case.

Ohio: Cincinnati, Jan. 6-March 31, 66 cases, 2 deaths; Toledo, March 18-April 1, 7 cases.

Pennsylvania: Altoona, March 25-April 1, 1 case; Steelton, March 18-April 1, 2 cases, 1 death; Philadelphia, March 18-25, 1 case.

South Carolina: Charleston, March 11-25, 6 cases, 1 death; Greenville, 4 cases, 3 deaths.

Tennessee: Memphis, March 18-April 1, 19 cases; Nashville, March 18-25, 5 cases.

### SMALLPOX—INSULAR.

Philippine Islands: Manila, Jan. 28-Feb. 11, 2 cases.

### SMALLPOX—FOREIGN.

Africa: Cape Town, Feb. 11-18, 1 case.

Brazil: Pernambuco, Feb. 1-15, 105 deaths; Rio de Janeiro, Feb. 12-March 12, 65 cases, 19 deaths; Victoria, Feb. 7-18, 19 cases, 1 death.

Canada: Hamilton, March 1-31, 1 case.

Chile: Valparaiso, March 4, epidemic.

China: Shanghai, Feb. 4-March 4, 4 cases foreign, 29 deaths native.

Denmark: Copenhagen, Feb. 25-March 11, 2 cases.

France: Nantes, March 3-17, 38 cases, 8 deaths; Paris, March 4-18, 32 cases, 2 deaths; St. Etienne, Feb. 19-28, present.

Great Britain: Birmingham, March 11-18, 2 cases; Bradford, Feb. 25-March 11, 4 cases; Cardiff, March 4-11, 1 case; Glasgow, March 10-17, 1 case; Hull, March 11-18, 3 cases; Leeds, March 4-25, 30 cases; Leith, March 4-18, 3 cases; London, March 11-18, 9 cases; New Castle-on-Tyne, March 6-18, 5 cases; Nottingham, March 4-18, 2 cases; Sheffield, March 11-18, 2 cases; South Shields, March 6-18, 9 cases, 1 death.

India: Bombay, Feb. 21-March 7, 148 cases, 186 deaths; Calcutta, Feb. 18-March 4, 7 cases, 12 deaths; Karachi, Feb. 19-March 5, 25 cases, 4 deaths; Madras, Feb. 18-March 3, 4 deaths.

Italy: Catania, Feb. 23-March 23, 15 deaths; Lecce Province, Feb. 23-March 9, 9 cases; Palermo, Feb. 11-March 18, 66 cases, 18 deaths.

Japan: Formosa, Feb. 1-28, 1 case; Kobe, Feb. 22, 1 case; Matsuyama, Feb. 15, 1 case; Nishiwagun, Feb. 11, 16 cases.

Mexico: City of Mexico, Feb. 11-March 25, 22 cases, 9 deaths.

Russia: Moscow, Feb. 25-March 11, 12 cases, 4 deaths; Odessa, Feb. 18-March 18, 19 cases, 7 deaths.

Spain: Barcelona, March 1-10, 9 deaths.

Straits Settlements: Singapore, Feb. 4-11, 2 deaths.

Turkey: Constantinople, Feb. 26-March 12, 5 deaths.

West Indies: Grenada, Feb. 23-March 9, 8 cases.

### PLAGUE—INSULAR.

Philippine Islands: Manila, Jan. 28-Feb. 18, 7 cases, 6 deaths.

### PLAGUE—FOREIGN.

Africa (British): Cape Colony, Feb. 4-25, 2 cases, 1 death; East Africa, Feb. 11, 25 deaths.

Arabia: Aden (corrected), Feb. 11-18, 254 cases, 204 deaths; Aden, Feb. 18-March 10, 568 cases, 510 deaths.

Australia: Brisbane, Jan. 2-18, 14 cases, 3 deaths; Bundaberg, Feb. 3, 1 death; Clarence River District, Jan. 10-Feb. 4, 1 death; New Castle, March 27, present.

Brazil: Rio de Janeiro, Feb. 12-March 12, 8 cases, 7 deaths; Taubete, Feb. 18, 1 death.

Chile, Arica, March 4, present; Iquique, March 4, present; Pisaqua, Feb. 27, 104 cases.

Egypt: Suez, Feb. 8-March 4, 7 cases, 6 deaths; Tukh, Feb. 16-23, 1 case.

India: Bombay, Feb. 21-March 7, 1,729 deaths; Calcutta, Feb. 18-March 14, 343 deaths; Karachi, Feb. 5-March 5, 125 cases.

121 deaths; Madras, Feb. 18-24, 3 deaths; Rangoon, Feb. 6-13, 25 cases, 8 deaths; general, Feb. 18-25, 31,154 cases, 29,465 deaths.

Japan: Formosa, Feb. 1-28, 177 cases, 169 deaths.

### YELLOW FEVER.

Brazil: Rio de Janeiro, Feb. 12-March 12, 54 cases, 18 deaths.

Mexico: Coatzacoalcos, March 18-25, 1 case; Merida, March 18-25, 1 case, 1 death.

Panama: Colon, Jan. 23-March 22, 4 cases, 1 death; Panama, Jan. 1-March 18, 82 cases, 35 deaths.

### CHOLERA.

India: Calcutta, Feb. 18-March 4, 54 deaths.

Russia: Baku, Jan. 31-Feb. 10, 1 case; Erivan, Jan. 23-30, 1 case; Ural Territory, Jan. 31-Feb. 10, 1 case.

Turkey in Asia (general): Jan. 21-Feb. 4, 7 cases, 4 deaths; Van, Jan. 21-28, 2 cases, 1 death.

# *Medical Organization*

## AN EPITOME OF THE HISTORY OF MEDICAL ORGANIZATION IN THE UNITED STATES.

By J. N. McCormack, M.D.

Chairman of the Committee on Organization of the American Medical Association.

BOWLING GREEN, KY.

As all of the states and territories except three, and including Hawaii and Porto Rico, are now organized on a practically uniform plan, with universal local societies, and coincident membership in them and the state associations as the cardinal feature, this seems an opportune time for the publication of a brief statement of pertinent historical facts and figures in regard to each of the reorganized states and of the national association, for the information and encouragement of all who are engaged or interested in the work, as well as to indicate and emphasize how much remains to be done in each jurisdiction before the profession will be so organized that it may safely and confidently undertake the great reforms demanded alike by its own interests and those of the great, common people for whose service and conservation it primarily exists.

In order that the statement might be made authoritative an inquiry was addressed to the secretary of the respective state associations, and only in a few instances have these reports been supplemented by information which these officials were unable to obtain. It is a matter of regret to the writer that the reports from a few states and territories were not received in time to be utilized, but these will be made the basis of a supplementary report.

As will be seen, New Jersey leads in the age of its state organization, it dating from 1766, followed by Massachusetts in 1781, Connecticut in 1792, Maryland in 1798, Rhode Island in 1812, and the other states in an irregular order bearing little relation either to the time of their admission into the Union or the number and influence of their medical population. In this connection it is interesting to note that comparatively few states had even nominal organizations until the agitation began which resulted in the formation of the American Medical Association, and that most of them were contented with these nominal organizations, which, as in my own state, embraced and interested only a small per cent. of the profession, having, in fact, little existence except on paper, until the national movement for real organization began. It is frankly admitted by all that this movement for reorganization from above downwards has its objectionable features, and that, theoretically at least, the reverse plan would have been preferable, but not only are these objections more theoretical than real, but both history and a comprehensive knowledge of professional conditions indicate beyond controversy that it offers the only feasible plan for so organizing the profession of this generation as to enable it to fulfill the purposes of its existence, the choice being between doing it in this way or permitting it to remain unorganized and powerless, as in the past.

It will also be noted that New Jersey, Massachusetts, Alabama, Pennsylvania and Indiana, in the order named, have been long organized on the coincident membership plan, and, having a larger per cent. of the profession already enrolled, received less apparent advantages from the recent movement. In a majority of the other states, but one, or at most, two years have elapsed since their reorganization, all of the reports giving the membership as shown at the annual meetings in 1904, and most of them expect a large increase for 1905.

In addition to the historical data the summary gives the correct official names of the respective organizations, places and dates of meetings, names and addresses of offices, and methods of publishing proceedings, and is as follows:

### Alabama.

The Medical Association of the State of Alabama was first organized in 1846. It was reorganized on the coincident membership plan, largely as the personal work of Dr. Cochran, beginning in 1868, but it was not until 1873 that the state association was made by law the state board of health, and the state board of medical examiners, and the county societies became the county boards of health, the organized profession being made in that year, and continuing since, as much a part of the civil government of state as the executive, judicial or legislative branches, although the last county society was not actually organized until 1888. The exact membership in 1868 is unknown, but it must have been small, as the total income from fees was about $500.00. The membership now embraces about 92 per cent. of the professional population, and the annual income is $2,500.00. This is unquestionably the most complete, compact and potential medical organization in this country, if not in the world, and it is able to confer benefits on the profession and people accordingly, but the fact that a considerable per cent. of the physicians of the state are not enrolled as members, and that no journal is maintained as a medium for promoting constant intercommunication and co-operation shows that much remains to be done, even there, before ideal conditions are secured.

C. C. Jones, East Lake, is president; L. C. Morris, Montgomery, secretary. The next meeting will begin at Montgomery April 18, 1905.

### Arizona.

The Arizona Medical Association was organized in 1892. At the time of the reorganization in 1904 there were 75 members out of a total medical population of about 200. Four county societies have been organized during the year, and the physicians are so few and scattered in the other seven that hyphenated or district societies alone can meet existing needs. The annual income is only $120.00 but much professional interest has been aroused and a better future is anticipated.

W. H. Ward, Phoenix, is president; J. W. Foss, Phoenix, is secretary. The next meeting will be held at Prescott, beginning June 1, 1905.

### Arkansas.

The Arkansas Medical Society was first organized in 1875, and was reorganized in 1902. At the annual meeting in 1904 the affiliated county societies had increased from none to 61, the membership from 192 to 756, and the annual income from about $600.00 to $1,572.00, the dues being decreased from three to two dollars. Under the stimulus of the movement a good medical law has been secured and put in operation, quackery has been suppressed at Hot Springs, where it has been a stench in the nostrils of both the profession and people, and in every way the increase in the interest and influence of the profession is reported as far exceeding the mere growth in membership and revenue. As 14 counties are still unorganized, with 663 eligible non-members in the state, and the transactions are still published in an annual volume instead of a live official journal, much remains to be done by councilors and other officers before the organization is complete.

J. P. Runyan is president, C. C. Stephenson is secretary, both of Little Rock. The next meeting will be held at that place beginning May 16, 1905.

### California.

The Medical Society of the State of California was first organized in 1856, and reorganized in 1902. In 1904 the county societies had increased from about 18 to 34, the paid-up membership from 350 to 1,700, and the revenues from dues from $1,750.00 to $3,400.00, the dues being decreased from five to two dollars. The society maintains a live monthly journal instead of the annual volume of transactions. The organized profession has successfully resisted attempts to emasculate the strong medical law, a rigid and effective warfare has been instituted against quackery, and professional conditions have been improved in other lines. There are still 22 unorganized counties, and about 1,000 eligible non-members, but in some of these counties the physicians are so scattered as to make effective organization difficult, although it is recognized that much remains to be done.

Frank L. Adams, Oakland, is president; Philip Mills Jones, San Francisco, is secretary. The next meeting will be held at Riverside, beginning April 18, 1905.

### Colorado.

The Colorado State Medical Society was first organized in 1870, and reorganized in 1902. In two years the county societies increased from 9 to 22, the paid-up membership from 280 to 560, and the revenues from about $1,400 to $1,650.00, the dues being cut down from five to three dollars. There are about 300 eligible non-members in the state and there are but two counties unorganized where there are enough physicians to maintain a society. A monthly journal has taken the place of the volume of transactions, a medical law, substantially as proposed by the legislative committee of the national association, has now been passed, and professional interest has been aroused and conditions improved in every way as compared with what existed under the old plan.

### Connecticut.

The Connecticut Medical Society was first organized in 1792, and was reorganized in 1904. It had long been organized on the county plan, all of the eight counties having societies in affiliation with the state society for many years. There are 736 members, the annual income is $1,832.00 and the number of non-eligible physicians is unknown. Little change was necessary in reorganizing, but it was done to put the society in complete accord with the other states and the national association. Under its already effective organization many salutary reforms have been secured, amongst them being an operative and reliable system of vital statistics, and a school for township health officers, each being paid a diem and expenses while attending the meetings.

William E. Carmett, New Haven, is president; N. E. Wordin, Bridgeport, is secretary. The next meeting will begin May 24, 1905.

### Florida.

The Florida Medical Association was organized in 1875, and reorganized in 1903. In the first year the county societies increased from 7 to 22, the membership from 170 to 236, and the revenues from about $500.00 to $708.00. There are still 23 unorganized counties, many of them large and sparsely settled, and in some instances counties have been hyphenated, or those desiring it held their membership in adjacent counties. The number of eligible non-members is unknown. Professional interest has increased greatly at Pensacola, Jacksonville, Tampa and many other places, and efforts are being made to secure better protection against quackery. as well as against pirates in the regular profession who overrun the health resort sections during the winter and migrate with the birds in the spring. The transactions are still published in pamphlet form.

Edward N. Leill is president, J. D. Fernandez is secretary, both of Jacksonville. The next meeting will be held at that place beginning April 20, 1905.

### Idaho.

The Idaho State Medical Society was organized in 1893 and reorganized in 1901, district being substituted for county societies on account of the doctors being so widely separated. In three years the membership increased from 47 to 101 and the revenues from $235.00 to $444.00. Under the stimulus of the new order of things the medical law has been strengthened and better enforced, and professional interest has increased greatly. The proceedings are published in such journals as will do so, usually in the *Portland Sentinel.*

R. L. Nourse, Hailey, is president: E. E. Maxey, Boise, is secretary. The next meeting will begin at Boise October 3, 1905.

### Indiana.

The Indiana State Medical Association was organized in 1849, and reorganized in 1903. The county society plan, with coincident membership, had been in operation in that state for fifteen years but had not been actively pressed. In one year's time the number of county societies increased from 75 to 88, some of them almost ideal in their work and results, the membership from 1,724 to 2,107 and the revenues from $1,724.00 to $2,107.00, the dues being but one dollar. Every phase of professional interest has advanced and been improved during the same time and a still brighter future is anticipated. There is much room for improvement, as there are over 3,000 eligible non-members in the state.

The transactions are still published in an annual volume but this will hardly continue.

Geo. T. McCoy, Columbus, is president; F. C. Heath, Indianapolis, is secretary. The next meeting will begin at West Baden June 7, 1905.

### Iowa.

The Iowa State Medical Society was organized in 1851 and reorganized in 1903. The exact number of county societies at that time is unknown, as affiliation was not necessary for membership, but there were a few active and some nominal ones. In one year's time 94 counties were regularly organized, including all but 5 in the state. The paid-up membership has increased from 650 to 1,517, and the revenues from about $1,300.00 to $3,034.00. A law has been secured forbidding "nasty advertising," and in every way professional interest and enthusiasm has been aroused. There are still about 2,500 eligible non-members. The transactions are published in an official organ, the *Iowa State Medical Journal*, and then bound in book form.

D. C. Brockman, Ottumwa, is president; V. L. Treynor, Council Bluffs, is secretary. The next meeting will begin at Des Moines May 24, 1905.

### Kansas.

The Kansas Medical Society was organized in 1866 and reorganized in 1904. No meeting has been held since the new plan was adopted and exact figures are not available, but there were about 500 members to begin with; 40 counties have been organized already, 65 are unorganized. The councilors and other officers are actively at work and greatly improved conditions are anticipated by the time of the annual meeting. The transactions are published in an excellent monthly journal.

Lawrence Reynolds, Horton, is president; Chas. S. Huffman, Columbus, is secretary. The next meeting will begin at Wichita May 3, 1905.

### Kentucky.

The Kentucky State Medical Association was organized in 1847 and reorganized in 1902. At that time there were few county societies and the paid-up membership was 290. In 1904 there were 97 county societies and over 1,600 members, the revenues had increased from $870.00 to $3,200.00, after reducing the fees from three to two dollars. A live monthly journal has been substituted for an obsolete volume of transactions and the profession is active and united to a degree never before known in its history, attention being given to scientific, business and legislative affairs in the county societies in a way and to a degree never before possible. The medical law is probably now more satisfactorily enforced than in any other state in the Union, although the law is not stronger than others, because of the cordial co-operation of the profession of every school of practice in the work, and quackery has been practically eliminated. A salaried health official has been provided for each city and county, vaccination can be made compulsory in any jurisdiction, a comprehensive system of railway sanitation has been recently put in operation, the higher courts are constantly extending the powers of the health authorities in their constructions of the laws, and the public press is gradually leading and elevating public sentiment to a greater appreciation of the unselfish work of the profession in all of these matters. Much more remains to be done, as there are 22 counties in the sparsely settled mountain regions unorganized, and 1,800 eligible non-members still to be brought in. The transactions are published in a strong medical journal edited by the secretary.

Frank A. Clark, Lexington, is president; James B. Bullitt is secretary. The next meeting will begin in Louisville October 5, 1905, the time having been changed from spring to fall in accordance with the recommendation of the American Medical Association at Atlantic City.

### Maryland.

The Medico-Chirurgical Faculty of the State of Maryland was organized in 1798, and reorganized in 1904. Most of the counties were organized immediately in advance of the adoption of the plan in the state and as no meeting has been held since it can only be said that a society exists in every county, that the councilors are active, and that the outlook is encouraging. The membership in 1904 was 693, and the revenues $2,300.00. No estimate of the eligible non-members has been made, but it was large at the beginning of this movement. The proceedings are published in an annual volume.

E. N. Brush, Towson, is president; John Ruhrah, Baltimore, is secretary. The next meeting will begin at Baltimore May 25, 1905.

### Massachusetts.

The Massachusetts Medical Society was organized in 1780. and has always had coincident local and state membership, small districts, not county lines, marking the boundaries of the local organizations. The number of members and eligible non-members is not reported, but its revenues and assets are large, and on account of the completeness and compactness of organization, and the high character and activity of its members it has always been one of the most influential medical bodies in this country. Its state board of health has taken the lead in many features of public health work, particularly in all matters relating to the protection and purification of water supplies and the disposal of sewage and factory wastes, its appropriatives for these purposes being practically unlimited. It manufactures and distributes vaccine and antitoxins, and has been able to secure and administer a practical statute regulating the collection of vital statistics, and is effective and is sustained by professional and public sentiment to an extent which it has not been possible in most other states. The transactions are published in an annual volume.

Arthur T. Cabot, Boston, is president; Francis W. Goss, Roxbury, is secretary. The next meeting will begin in Boston June 13, 1905.

### Michigan.

The Michigan State Medical Society was organized in 1819, and reorganized in 1902. At that time there were 11 county societies, 452 paid-up members, and the annual income was $1,615.00. In two years 83 counties, all in the state, had been organized into 62 societies, the membership had increased to 1,772, and the income to $4,813.00, although the dues were cut down. Through the increased power given by this reorganization the medical law has been strengthened, "nasty advertising" has been prohibited, representation on the board of regents of the State University has been conceded to the profession, and in almost every way the influence and usefulness of the profession have been greatly extended. The work is in its infancy, as there are about 3,500 eligible non-members, but the councilors and other officers are active and the future of the profession was never before so promising. The transactions are published in a live, progressive monthly journal.

B. D. Harison, Sault Ste. Marie, is president: Andrew P. Biddle is secretary. The next meeting will begin at Petoskey June 28, 1905.

### Minnesota.

The Minnesota State Medical Association was organized in 1869, and reorganized in 1903. In one year the membership increased from 492 to 930, the component societies from 12 to 36, some of them hyphenated and including every county, and the revenues have increased from $1,158.00 to $2,314.00. The increased interest in professional affairs has been marked, especially as shown in the regular attendance and work in the local societies, and the outlook was never before so promising. There are from 500 to 700 eligible non-members, and the transactions are published in an annual volume.

J. W. Bell, Minneapolis, is president; Thomas McDavitt, St. Paul, is secretary. The next meeting will begin at St. Paul June 1, 1905.

### Missouri.

The Missouri State Medical Association was organized in 1858, and reorganized in 1903. In one year the number of affiliated county societies increased from 14 to 70, the membership from 258 to 1,600, and the revenues from $774.00 to $3,200.00, although the dues were reduced from three to two dollars. There are 45 unorganized counties and about 3,600 eligible non-members, but new societies are being organized constantly and a great increase is confidently expected before the next meeting, as conditions are steadily improving. Much remains to be done, as legislation has been difficult to obtain, and still more difficult of enforcement, but these are expected to disappear before a really organized and harmonious profession, which, for the first time in the history of the state, now seems possible. The transactions are published in an excellent monthly journal.

Jabez N. Jackson, Kansas City, is president; C. M. Nicholson, St. Louis, is secretary. The next meeting will begin at Excelsior Springs May 16, 1905.

### Mississippi.

The Mississippi State Medical Association was organized in 1856, and reorganized in 1903. In one year the number of county societies increased from 2 to 51, the membership from 225 to 715, and the revenues from about $500.00 to $1,430.00. There are 25 unorganized counties and about 1,700 eligible non-members, so that the work has just began. The transactions are now published in a monthly journal and only a little increased effort is necessary on the part of the councilors and other officers to complete the organization and make it most effective.

T. J. Mitchell, Jackson, is president: J. J. Haralson, Forest, is secretary. The next meeting will begin at Jackson, April 19, 1905.

### Montana.

The Montana State Medical Association was organized in 1891, and reorganized in 1903. In one year the county societies have increased from 5 to 9, the membership from 65 to 142, and the annual income from $130.00 to $284.00. There are 17 unorganized counties, sparsely settled, and only 50 eligible non-members. No regular publication of the transactions is made.

B. C. Brooke, Helena, is president; Grace W. Cahonn, Butte, is secretary. The next meeting will begin at Butte May 18, 1905.

### Nebraska.

The Nebraska State Medical Association was organized in 1868, and reorganized in 1903. County societies were organized in anticipation of the adoption of the plan by the state and in 1904 the number of county societies had increased from a very few to 62, the membership from 275 to 736, and the annual income from $550.00 to $1,472.00. Professional power and usefulness have grown rapidly. An efficient law regulating the collection of vital statistics is one of the many evidences of this improvement in both professional and public sentiment. There is much still to be done, as there are about 850 eligible non-members. There are 28 unorganized counties, but no physicians in 5 of these, and so few in 20 others that a society would be impossible. The physicians in such counties can hold their membership in an adjacent county. The transactions are published in journal form, but this is not owned by the association.

R. C. McDonald, Fremont, is president: A. D. Wilkinson is secretary. The next meeting will begin at Beatrice, May 2, 1905.

### New Jersey.

The Medical Society of New Jersey was organized in 1766, and reorganized in 1903, little change being required to conform its constitution and by-laws to those of the standard plan. Affiliated societies already existed in 20 of the 21 counties and the other was organized during the year. The membership increased during the year from 1122 to 1200 and as the annual dues were increased from $1.50 to $2.00 the income was correspondingly improved. This had long been one of the organized states, with good local societies, coincident membership and a monthly journal, its medical and health laws were well ordered and more than usually effective. Work remains to be done, however, as there are between 500 and 600 eligible non-members to be brought in and many health and medical reforms yet to be inaugurated, as well as constant watchfulness required to guard what has already been secured.

Walter B. Johnson, Paterson, is president; W. J. Chandler, South Orange, secretary. The next meeting will begin at Asbury Park June 20, 1905.

### New Mexico.

The New Mexico Medical Association was organized in 1885, and reorganized in 1904. No meeting has been held since but the membership has increased from 53 to 76, leaving but 20 eligible non-members; the income has increased from $53.00 to $228.00. The reorganization has brought the profession closer together and this has been shown in the active and effective part it has taken in territorial legislation. The coming meeting at Las Vegas May 10, promises to be the best ever held. The proceedings are not published in regular form.

Edwin B. Show, Las Vegas, is president; G. H. Fitzgerald, Albuquerque, is secretary.

### North Carolina.

The Medical Society of the State of North Carolina was organized in 1849, and reorganized in 1903. In one year the affiliated county societies increased from 8 to 90, the paid-up membership from 285 to 1,060, and the annual income from $600.00 to $2,120.00. This state has long had one of the most effective medical laws, and a fine profession, but the improvement in power and usefulness has been as remarkable as the increase in numbers and local societies. This was shown by the influence brought to bear on and the prompt defeat of an unjust bill favoring osteopathy, and in many other ways. There are only 250 eligible non-members and most of these can be easily brought in so great is the enthusiasm for a perfect organization. The transactions are still published in an annual volume, but nearly everything is also published in the two journals in the state.

D. T. Taylor, Washington, is president; J. Howell May, Waynesville, is secretary. The next meeting will begin at Greenboro May 23, 1905.

### North Dakota.

The North Dakota State Medical Association was organized in 1887, and reorganized in 1904. The number of organized counties has increased during the year from 2 to 44, leaving but 3 out, most of these being combined on account of the sparse medical population. There were 153 members in 1904, and the annual income was $306.00. These will be markedly increased but the reports are not yet available from many counties. A good medical law has been secured during the year and the increase of interest is manifest. There were about 250 eligible non-members last year. The transactions are published in pamphlet form.

James A. Rankin, Jamestown, is president; Ernest C. Wheeler, Fargo, is secretary. The next meeting will begin at Grand Forks May 24, 1905.

### Ohio.

The Ohio State Medical Association was reorganized in 1902. In two years the number of affiliated county societies increased from 41 to 73, the membership from 992 to 2,640, and the annual income from $1,984.00 to $2,640.00, the dues being decreased to one dollar. The increased interest, usefulness and power of the profession is manifest almost everywhere, and this is gaining, although all this seems small compared with what is yet to be accomplished. There are still 4,200 eligible non-members and 15 counties remain to be organized. The transactions are published in an annual volume, but there is a strong sentiment in favor of a state journal.

S. S. Halderman, Portsmouth, is president; Frank Winders, Columbus, is secretary. The next meeting will begin at Columbus May 10, 1905.

### Pennsylvania.

The Medical Society of the State of Pennsylvania was organized in 1848, and reorganized in 1902, although long having coincident membership and the general features of the uniform plan. In two years the county societies increased from 55 to 59, leaving but 5 unorganized, and the membership from 3,633 to 4,140. For obvious reasons the improvement has not been so manifest in this as in the states heretofore so imperfectly organized, but the growth in both membership and interest has been marked, especially in Philadelphia, and in the state society. There are still 3,500 eligible non-members, and ample work to do in many other directions, with a strong profession capable of almost anything back of and in the movement. The transactions are published in an excellent journal.

Adolph Koenig, Pittsburg, is president; Cyrus Lee Stevens, Athens, is secretary. The next meeting will begin at Scranton September 26, 1905.

### Rhode Island.

The Rhode Island Medical Society was organized in 1812, and reorganized in 1904. Until that time all applicants for membership were required to pass an examination independent of the examination for a state certificate. The number of affiliated county societies at that time was 4, which has been increased to 6, having but one unorganized. The membership has increased from 275 to 302, and the annual income from $2,071.00 to $2,150.00. Although the time has been so short an undoubted increase is noted and it is probable that an organizer will be appointed to bring in the eligible non-members. The transactions are published in a journal and then are bound into an annual volume.

William R. White, Providence, is president; Stephen A. Welch, Providence, is secretary. The next meeting will begin in that city June 1, 1905.

### South Dakota.

The South Dakota State Medical Association was organized in 1882, and reorganized in 1903. At that time there was one county and one district society. The counties of the state were divided into nine hyphenated or district societies, and eight of these are well organized. In one year the membership increased from 86 to 175, but there are about 325 eligible non-members and much to be done. The annual income increased from $150.00 to $350.00, and will be $500.00 or more this year. The improvement in professional conditions has been very marked. An effective medical law was secured and another providing for the collection of vital statistics, but it has been equally apparent in the better social and ethical relations. The transactions are published in an annual volume.

Charles B. Mallery, Aberdeen, is president; William Edwards, Bowlder, is secretary. The next meeting will begin at Deadwood July 5, 1905.

### Tennessee.

The Tennessee State Medical Association was organized in 1830, and reorganized in 1902. In two years the affiliated county societies increased from 18 to 63, the membership from 386 to 1,097, and the annual income from $772.00 to $2,194.00. There are still 32 unorganized counties, most of them in the sparsely settled mountain regions, and there are about 1,500 eligible non-members. There has been an awakening in regard to all professional matters, but very much remains to be done in almost every department. The transactions are published in an annual volume.

Paul F. Eve is president, Deering J. Roberts is secretary, both of Nashville. The next meeting will begin in that city April 11, 1905.

### Texas.

The State Medical Association of Texas was organized in 1869, and reorganized in 1903. In one year 123 county societies, including 160 counties, were formed, the membership increased from 435 to 2,390, and the annual income from $1,815.00 to $5,986.00. The increase in professional interest and enthusiasm has been more remarkable than in almost any other state, and is still growing. The difficulties met by the earnest, active, self-sacrificing councilors seemed almost insurmountable but they were soon overcome and turned to advantage. At first there were large district societies to which old members were naturally wedded, but these were woven into the plan and made an element of strength, and so with other seeming obstacles. There is still a great work before the Texans to which they will prove fully equal. There are 83 unorganized counties, some of them a hundred miles across, without a county town, civil government or physician. They cannot be organized yet, even by Texas councilors. Others have but one or two doctors, but there are 2,307 eligible non-members, and many of these will be brought in this year. The transactions are still published in an annual volume.

F. E. Daniel, Austin, is president; I. C. Chase, Fort Worth, is secretary. The next meeting will begin at Houston April 25, 1905.

### Vermont.

The Vermont State Medical Society was organized in 1813, and reorganized in 1901. This state was already organized on the county plan in a measure, 12 of the 14 having societies. In three years the membership increased from 150 to 350, but the annual income was less, as the dues were reduced from three to two dollars. As a result of this movement Dr. Gorham reports the interest in the profession greatly increased in every way, and that a new and better medical law has just been secured. Much work is still needed, as there are about 600 eligible non-members. The transactions are published in an annual volume.

P. E. McSweeney, Burlington, is president; George H. Gorham, Bellows Falls, is secretary. The next meeting will begin at Burlington October 12, 1905.

### West Virginia.

The West Virginia State Medical Association was organized in 1867, and reorganized in 1902. In two years the county societies have increased from 2 to 25, the paid-up membership from 200 to 600, and the annual income from $400.00 to $1,200.00. There has been a marked improvement in ethical, social and other relations, a new examining law has been secured and other reforms are in prospect as the profession becomes really organized. There are 30 unorganized counties, chiefly in the mountain regions, and about 1,000 eligible non-members in the state. The transactions are published in an annual volume.

T. M. Hood, Clarksburg, is president; William W. Golden, Elkins, is secretary. The next meeting will begin at Wheeling May 24, 1905.

## Wisconsin.

The State Medical Society of Wisconsin was organized in 1841, and reorganized in 1903. In one year the organized counties increased from 8 to 72, every one in the state. The paid-up membership increased from 700 to 1,350, and the annual income from $2,100.00 to $2,700.00, the dues being cut down from three to two dollars. Still more active work has been carried on since the last meeting but the returns are not yet available. There are no more counties to be organized, and there were only 900 eligible non-members left in the state. Dr. Sheldon reports that "the effect of the county societies has unquestionably stimulated a far greater interest in the profession at large. It is developing a true professional spirit and bringing the individual members all over the state into closer touch, and the prospects are promising for still greater improvement in all ways." The transactions are published in a monthly journal.

C. W. Oviatt. Oshkosh, is president; Charles S. Sheldon is secretary. The next meeting will be held at La Crosse June 8. 1905.

## The United States.

### THE AMERICAN MEDICAL ASSOCIATION.

The American Medical Association was organized in 1847, and reorganized in 1901. During the intervening period—from June 1, 1901, to January 1, 1905—the membership increased from 10,817 to 17,570.

The association was organized on a broad and comprehensive basis, and was a strong and influential body from the first meeting. Always a delegate body, and with the elevation of the standard of medical education as one of its first objects, it invited representation from reputable bodies of medical men of every kind and degree, and courted it from the faculties of medical colleges. With this as a primary and evident duty, and with distinguished teachers, led by the masterful Gross, and untiring Davis, dominating its councils and shaping its policies always, it seems strange and almost paradoxical that this was the one medical interest which it did not materially influence, the regulation and elevation of standards being finally determined by the licensing bodies in the several states.

While the membership never before embraced such a large per cent. of the total medical population of the country as it now does. the meetings always attracted the attention of the best and strongest men from every section, the standard for scientific work was high. the social features were a delight. and each annual meeting was justly considered a marked period in the history of the profession and in the lives of the participants. In all of these fields the achievements of the Association were always conspicuously successful.

In its prevision and supervision of the material interests of the profession. legislative. financial and otherwise. as was true in regard to medical education, the failure along all lines was equally conspicuous. Nor was it difficult to account for either the success or the failure. The scientific men were divided into appropriate sections, and small groups of individuals. each with talent for that special field. worked out the problems in the line of their own life work. As has been said. it was designed from the beginning as a delegate body, but as the years went by this was lost sight of in practice, every one in attendance became a member of the business body, which was too unwieldy for the intelligent consideration or discussion of any weighty proposition. the evolution having been exactly the opposite of what had developed in the scientific departments. and for years the business of the profession of this country, in so far as it was transacted in the public body, was run as a widow runs a farm. The only safety then was in a strong. conservative. business committee, and the good judgment of the officers, and while little or no progress was made. the profession was protected from retrogressive and actual harm. A debt of everlasting gratitude is due to the wise leaders of that critical period.

From the early eighties Dr. N. S. Davis. always wise and forehanded. led the movement for reorganization. and in 1888, as chairman of a committee which had given careful study to existing condition and necessities, he presented a comprehensive scheme for this purpose. very similar to the one proposed and adopted at St. Paul in 1901. This plan makes the county societies not only the units of organization but the origin and basis of all authority, as nearly as possible in accordance with our system of civil government, specially selected delegates from these primary organizations making up the business bodies of the state associations, and these in turn selecting specially qualified men from the rank and file of the entire profession to represent the state in the national body. In this way the business of the profession for the entire country is looked after by a small body, the house of delegates, limited to 150 members, specially selected by the delegates from the county societies on account of their supposed training and qualification for such duties. Through such plan the Association hopes ultimately to have the county societies reach and help every physician within their respective jurisdiction, in every possible way, scientific, social or material, so far as it can do so.

This work of the association is absolutely altruistic. There is no American Medical Association except the physicians who compose its membership. It has now a large annual income, but every dollar of this belongs to the members, each being a stockholder to the extent of his annual dues. No one can hold more or less. The nine trustees who manage this fund can have no motive except to act for the best interest of the profession at every step. Trustees like Dr. William H. Welch, and others equally disinterested. attend these meetings and spend day after day in this self-sacrificing labor, for the good of the profession, receiving absolutely no compensation except their bare traveling expenses. In addition to its management of *The Journal*, now easily the foremost medical periodical in the world, and the work of organization, the responsibility and expense of which it has gladly borne, the association has gone back to the original purpose for which it was founded and established a Council on Medical Education to make a real investigation. of the teaching methods of this country and acquaint the profession of the results. It has established a Council on Pharmacy and Chemistry with far-reaching powers and possibilities. It is preparing for a reliable National directory, owned by the profession and managed in its interest. It has in preparation model medical practice and public health laws to be recommended to the respective states for their approval and adoption in general principles. in the hope that practical uniformity will make reciprocity in licensure and other similar benefits possible to the profession of this country. These things are all being worked out. Besides, it has in contemplation a university extension course to be offered to all county society members who will avail themselves of it.

In acting as the agent and mouthpiece of the 120,000 medical men in this country the Association fully realizes the gravity of the responsibility it has assumed. The personnel of the management will change at the pleasure of the constituency, but it is believed that men equal to the needs of the hour will always be found. An order of statesmanship and breadth of grasp will be demanded when the profession purifies itself and comes into its own, which might appall those now at the helm, but nature's laboratories are inexhaustible and, as in the past, men will always be found to fill the hour and the duty.

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## Civic Sanitation Committee.

In the April number of the *California Medical and Surgical Reporter* are some suggestions as to a possible field of activity for the Los Angeles County Medical Association, which might well be noted by all medical societies in towns large enough to have municipal forms of government, dealing with sanitary problems. After commenting on the fact that manufacturers, merchants and property owners always present their views and endeavor to protect their interests on proposed legislation affecting them, while medical and sanitary legislation is often neglected, the *Reporter* asks:

"Why would it not be wise to have a standing committee on civic sanitation. the duty of which committee would be to keep a close watch on the city's hygienic and sanitary needs, reporting on needed measures at the various meetings of the society, obtaining the proper resolutions from the society, placing these resolutions before the proper municipal authorities and seeing to it that they receive proper consideration? If we are to remain true to the tenets of our profession we should ever be willing to give our best efforts not only to cure. but to prevent diseases."

This is an eminently practical suggestion for county societies looking for an opportunity directly and vitally to influence local conditions. A permanent committee from each county society would soon become recognized as an authority on sanitary matters as well as an expert body for consultation in proposed legislation.

### Colorado.

Eastern Colorado Medical Association.—Representatives from Morgan, Washington and Yuma counties met at Wray, March 11, and organized this association with the following officers: President, Dr. Earl D. McGill, Wray; vice-president, Dr. Elisha J. Bales, Wray; secretary, Dr. George B. Bilsborrow, Yuma; treasurer, Dr. N. J. Phelan, Akron, and censors, Drs. A. L. Howe, Wray; N. J. Phelan, Akron, and W. E. Turner, Brush.

### Iowa.

Fremont County Medical Society.—On call of Dr. H. J. Piper, Randolph, seven physicians of the county met at Sidney, February 1, and reorganized the county medical society on the standard plan, with the following officers: Dr. Evan F. Cowger, Riverton, president; Dr. Thomas G. Stevens, Sidney, vice-president; Dr. Edwin E. Harris, Tabor, secretary-treasurer, and Drs. H. J. Piper, Randolph, and Willis G. Morris and James M. Lovelady, Sidney, censors.

### Kansas.

Chase County Medical Society.—Physicians of the county met at Cottonwood Falls, March 22, and organized a county medical society, electing Dr. Frank T. Johnson, Cottonwood Falls, president, and Dr. Samuel Steele, Strong, secretary.

Sumner County Medical Society.—Dr. O. J. Furst, councilor of the fourth district, organized this society March 29. The following officers were elected: President, S. T. Shelly, Mulvane; vice-president, H. A. Vincent, Corbin; secretary-treasurer, T. H. Jamieson, Wellington; delegate, J. L. Halleday, Wellington; censors, W. E. Bartlett, F. G. Emerson and S. W. Spitler. There are 24 charter members in the society.

### Missouri.

Franklin County Medical Society.—The physicians of Franklin County met at Pacific, April 3, and after the discussion of the subject of organization by Dr. F. J. Lutz of St. Louis, councilor of the district, Dr. J. N. McCormack of Kentucky formed a new society under an existing charter and the Standard Constitution and By-laws. The following officers were elected: President, H. A. Booth; vice-president, J. P. Donnigan, Sullivan; secretary-treasurer, A. C. Brown, Moselle; censors, John A. Rush, Gray's Summit; W. P. Mattox, Sullivan, and H. A. Poppenhausen, Washington; delegate, A. L. McNay, Pacific.

### Montana.

Gallatin County Medical Society.—The physicians of the county met at Bozeman, March 7, and organized a county medical society with the following officers: President, Dr. John M. Waters, Bozeman; vice-president, Dr. James F. Blair; secretary, Dr. Cornelius B. Boyle; treasurer, Dr. James E. Ragsdale; trustees, Drs. David H. Patterson, Joseph Piedalue and Clyde W. Jump, and delegate to the state association, Dr. John M. Waters, all of Bozeman.

### New Mexico.

Dona Ana County Medical Society.—The physicians of the county met recently in Las Cruces and organized a county medical society with Dr. Bruce E. Lane, Las Cruces, president; Dr. John H. Johnson, Organ, vice-president, and Dr. R. E. McBride, Las Cruces, secretary and treasurer.

### Ohio.

Ashland County Medical Society.—Physicians of Ashland County met at Ashland March 14, and reorganized the county society on the standard plan, electing the following officers: Dr. David S. Sampsell, Ashland, president; Dr. Jacob Fridline, Ashland, vice-president; Dr. Robert C. Kinnaman, Ashland, secretary; Dr. William H. Wirt, Loudonville, treasurer; Drs. Daniel E. Pocock, Jeromeville; Allen W. Budd, Perrysville, and Abram L. Sherick, Ashland, censors; Dr. Frederick V. Dotterweich, Ashland, delegate to the state association, and Dr. Charles B. Scott, Loudonville, alternate. A committee consisting of Drs. W. M. McClellan, Abram L. Sherick and Emery, all of Ashland, was appointed to make the necessary changes in the constitution and report at the next meeting.

# *Society Proceedings*

## COMING MEETINGS.

American Medical Association, Portland, Ore, July 11-14, 1905.

Medical Assn. of State of Alabama, Montgomery, April 18.
Medical Society of the State of California, Riverside, April 18-20.
Amer. Medico-Psychological Assn., San Antonio, Tex., Apr. 18-21.
Florida Medical Association, Jacksonville, April 19.
Medical Association of Georgia, Atlanta, April 19.
Mississippi State Medical Association, Jackson, April 19.
Amer. Assn. Pathologists and Bacteriologists, Chicago, Apr. 21-22.
American Gastro-Enterological Assn., New York, April 24-25.
Medical and Chirurg. Faculty of Maryland, Baltimore, Apr. 25-27.
Texas State Medical Association, Houston, April 25-28.

## PHILIPPINE ISLANDS MEDICAL ASSOCIATION.

*Second Annual Meeting, held at Manila, March 1-4, 1905.*

The meetings were held in the library of the government laboratories. At the opening session, addresses were made by Governor General Luke E. Wright and Dean C. Worcester, secretary of the interior. The presidential address was given by Dr. John R. McDill.

The papers read during the three days' session were mainly on tropical diseases and problems peculiar to the Philippine Islands. Among the subjects presented were the following: "Beri-Beri," by Dr. Erwin Baelz, emeritus professor of medicine, University of Tokyo; "Glaucoma Among the Friars," by Dr. Clarence J. Miner; "Symptoms, Diagnosis and Treatment of Amebic Dysentry in the Tropics," by Dr. W. E. Musgrave; "Chinese Medicine," by Dr. Tee Han Kee; "History of Plague in the Philippine Islands," by Maximilian Herzog, and "Endemic Neuritis," by Dr. J. M. Wheate.

The session closed Saturday night with a dinner at the Army and Navy Club, at which the Governor General, the Secretary of the Interior, Major-General Leonard Wood, Col. J. B. Girard and other distinguished visitors were guests of honor. The society numbers 61 members and has on its rolls American, English, German, Japanese, Spanish and Philippine physicians.

## ASSOCIATION OF AMERICAN MEDICAL COLLEGES.

*Fifteenth Annual Meeting, held in Chicago, April 10, 1905.*

The President, Dr. Samuel C. James, in the Chair.

### Officers Elected.

The following officers were elected to serve for the ensuing year: President, Samuel C. James, Kansas City, Mo.; vice-presidents, William H. Earles, Milwaukee, and Eli H. Long, Buffalo, N. Y.; secretary-treasurer, Fred C. Zapffe, 1764 Lexington Street, Chicago; judicial council, W. J. Means (chairman), Columbus, Ohio; R. Winslow, Baltimore; T. H. Hawkins, Denver; P. Ritchie, St. Paul; G. M. Kober, Washington; H. Ward, Lincoln, Neb.; J. M. Dodson, Chicago.

The next meeting will be held in Pittsburg, Pa., March 19, 1906.

In his address as president, Dr. James reviewed the work done by this association and its influence on medical education.

### New Constitution.

The principal business transacted in the executive session was the adoption of a new constitution and by-laws, which differ from the old in the following requirements: The annual dues are raised to $25.00. The minimum entrance requirement is made a diploma from an accredited high school, normal school, or academy requiring for admission evidence of the completion of an eight-year course in primary and intermediate grades, and for graduation not less than four years of study, embracing not less than two years (four points) of foreign languages, of which one must be Latin; two years (four points) of mathematics; two years (four points) of English; one year (two points) of history; two years (four points) of laboratory science, and six years (twelve points) of further credit in language, literature, history, or science.

(One point is not less than five periods per week of forty-five minutes each for eighteen weeks.) Or the applicant is required to take an examination in prescribed subjects, equaling a credit of 30 points, or he must present certificates from reputable instructors recognized by the superintendent of public instruction in the city or state in which the college is located, or by any state board of medical examiners duly authorized by law, which may be accepted in lieu of any part of this examination.

Provision is made for a four years' course of study in four calendar years, each annual course to have been of not less than thirty teaching weeks' (including examinations) duration, and at least ten months intervening between the beginning of any course and the beginning of the preceding course.

Credit may be given to the holder of a bachelor's degree for any work in the medical branches which he has successfully completed in his college course *only so far as* it is the full equivalent of corresponding work in the medical curriculum. The holder of such degree may also be given time credits of not exceeding more than one year; provided, he has had at least 40 hours in physics, 144 hours in chemistry, 24 hours in osteology, 292 hours in human or comparative anatomy, 124 hours in histology, 85 hours in embryology, 145 hours in physiology, and 46 hours in materia medica, provided, that the applicant satisfies the professors of the chairs mentioned in the medical school as to his proficiency in these first-year medical studies.

Every student is obliged to attend 80 per cent. of the exercises in every annual course of study for which he seeks credit, and no credit shall be given unless he attains a grade of at least 70 per cent. or its *equivalent* in any other marking system No student shall be graduated unless he attains a passing grade in each and all subjects of the required curriculum.

Article 4 provides for the following: Between January 1 in any year and the annual meeting of the association each college in membership shall prepare, on blanks of standard form and size, furnished by the secretary, a list of all students matriculated since the last report, showing for each case the character and extent of the credentials for entrance, the conditions entered against said student and the standard accorded him. Such reports must be certified to by the dean and registrar or secretary of the college. Violations of the constitution are punishable by expulsion from the association.

Provision is also made for a permanent visitation committee consisting of the president, secretary and chairman of the judicial council, whose duty it is to visit and investigate all colleges holding membership at least once every five years for the purpose of determining whether the members are enforcing the laws of the association.

### New Members.

The judicial council reported favorably on the applications for membership of the School of Medicine, University of Indiana, Bloomington, Indiana, for the first two years of the medical course (the last two not being given), and the Medical Department of Washington University, St. Louis, Mo.

### Committees Appointed.

The following committees were appointed: To represent the association at the conference meeting of the Council on Medical Education of the American Medical Association to be held in Chicago, April 20—S. C. James and J. M. Dodson. To represent the association at the meeting of the American Confederation of Reciprocating, Licensing and Examining Medical Boards, to be held in Indianapolis, April 27—F. C. Zapffe and W. J. Means. To represent the association at the meeting of the National Confederation of State Licensing and Examining Boards, to be held in Portland, July 10—S. C. James and F. C. Zapffe. To investigate liberal arts colleges with reference to the purely scientific subjects embraced in the medical curriculum and taught by them, for the purpose of determining the credit that may be given for such work (not yet named).

*(To be continued.)*

## AMERICAN SOCIETY OF TROPICAL MEDICINE.

*(Concluded from Page 1140.)*

### Slow Progress at the Isthmus.

Dr. Joseph McFarland showed a series of lantern slides *made from* photographs taken on the isthmus, *giving a* general idea of the country, the cities of Colon and Panama, the excavations thus far made on the canal, and of the canal hospital at Ancon. The chief impression that he had brought back was that the isthmus was a God-forsaken place, in which very little was being done. He had been much disappointed to find so little visible evidence of actual progress *in canal construction. He found the principal hospital at Ancon* improperly equipped and destitute of such essential paraphernalia as mosquito wire at the windows and microscopes for studying the cases. Considerable in the way of adjusting the sanitary affairs has been accomplished in the city of Panama, but the good that has been done seems to be counteracted by the conditions at Colon. He was under the impression that the *canal never could be built* unless an entire reorganization of the commission and a complete change in the methods is brought about.

### Impressions of Panama and the Pan-American Medical Congress.

Dr. Roland G. Curtin said that the climate of Panama was typically tropical. When he arrived he was told that the rainy season was over and that the dry season had begun. It was not excessively dry, however, as it rained every day he was there, and five times the first day. The real rainy season usually lasts eight or nine months. At Colon there may be as much as 200 inches of rain in one year. The temperature varies from 85 to 96 F., in the shade. There are sometimes storms and even cyclones during the rainy season. The population of the city of Panama is 20,262, 90 per cent. being negroes, 5 per cent. white and 5 per cent. Indians and Chinese. The negroes are apparently healthy and surprisingly free from rickets.

The sanitary problems which Colonel Gorgas has before him, as chief sanitary officer of the commission, are exceedingly difficult. There are two cities, Colon and Panama, which must be placed under rigid quarantine, provided with a regular, wholesome water supply, under-drained, whose swamps must be drained, and in which adequate hospital facilities must be provided. Much has already been begun. The swamps and ditches found along the railroad have been drained; the filthy back yards have been cleaned; barrels for refuse furnished and covered; cisterns covered; cess pools cleansed, and standing water has been properly oiled to prevent the propagation of mosquitoes. He was well satisfied that the sanitary bureau was well *managed and in excellent* hands, all that is wanted being an opportunity to work without hindrance.

The climate is not so dangerous as has been represented. Four hundred United States marines are stationed at Empire, on Culebra Hill, and up to the time of his visit there had not been a single death among them, and the percentage of sickness was not larger than at an average military post. The prophylaxis of yellow fever is based entirely on the mosquito theory of its origin.

Malaria is not more common at the isthmus than in some parts of our own country, but it is an "all-the-year-round" disease. Dr. Gorgas states that the blood of 29 out of 44 school children examined at Bahio was found to contain the parasites. Beriberi is extremely prevalent and is always present in Panama city and is the cause of many deaths. Dysentery exists, but has never been epidemic.

### Panama and the Panama Canal.

Dr. Seneca Egbert gave a brief history of the isthmus and the canal from the time of the discovery of the Pacific by Balboa (1513), and the founding of the old city of Panama (1519), until the present. Canals to connect the two oceans across this isthmus have been projected ever since 1520, and the republic of Colombia has been granting concessions for the purpose since 1835, but actual work was first begun in 1881 by de Lesseps' company and was carried on by it until 1892. The $260,000,000 which the company spent in that time actually represents more than $1,000 for every linear foot along the line of the canal from ocean to ocean, or more than one dollar for every minute of time from the day Balboa first set foot on the isthmus until the present. A new company was organized with a comparatively small capital in 1894 and worked steadily, though on a small scale, during the next ten years. It is to this company that the United States is paying $40,000,000 for the property in its present state and for the concessions held by it.

As to the canal itself, it is almost two-fifths completed, and as practically all the future problems are now foreseen, American skill and enterprise should solve these and the work should be carried to completion speedily, honestly and efficiently.

Of these problems the most imminent, persistent and serious are those pertaining to the tropical diseases which prevail throughout the canal zone and which it is the province of this society to investigate. Consequently the chief sanitary officer of the canal work should be pre-eminent in his domain and should have every facility and assistance that the resources of our government and our science can give.

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## NORTH BRANCH PHILADELPHIA COUNTY MEDICAL SOCIETY.

*Regular Meeting, held March 9, 1905.*

Dr. A. Bern Hirsh in the Chair.

### Simulated Tabes with Ocular Paresis and Myosis in the Unaffected Eye.

Dr. J. O. Arnold's patient, 38 years of age, was for many years a worker in metallic lead, although there were no symptoms of lead poisoning. The peculiarity of the pupils was first noticed ten years ago, at which time he had no symptoms. Four years ago he came under the care of the author for an attack of gonorrhea, at which time there was very little response to the knee jerks; Lowenburg's symptom was absent and there was no history of gastric crises or sphincter involvement. Two years ago he first noticed a peculiar gnawing sensation over the right eye, extending up over the forehead, with Argyll-Robertson pupil. The symptoms gradually disappeared, but on failure to keep up treatment returned. Lately he has noticed some slowness in voiding urine. His wife, who died eight years ago, was always healthy. One daughter has symptoms of inherited syphilis, and between the birth of this child and the preceding one there was a history of several miscarriages. There are no sensory changes.

DISCUSSION.

Dr. C. W. LeFevre stated that the ocular symptoms of tabes were quite as varied as the general symptoms, and divided them into three classes: 1. Those in which there was atrophy of the optic nerve. 2. Those in which there was involvement of the external and internal muscles. 3. Those in which there was the Argyll-Robertson pupil. He stated that the symptoms were due principally to sclerosis of the spinal cord, especially the superior cervical region.

Dr. J. W. McConnell viewed the case as one of pseudotabes.

Dr. Wendell Reber did not view this case as one of true tabes.

Dr. Gillespie stated that the pupil did not resemble the Argyll-Robertson pupil.

Dr. L. C. Peter referred to an epileptic condition which in the beginning resembles true tabes, and stated that he believed there was no doubt that this case was one of pseudotabicular syphilis.

### Headache as a Symptom.

Dr. William Clifton Drein considered the subject under the headings of intracranial and extracranial headaches. Under the first classification he considered (a) anemic headaches, with vertical pain, usually less marked when patient is reclining, pale face and eyegrounds, disturbed sleep, drowsiness, reduced heart's action and, in extreme cases, edema of the ankles. Two symptoms of diagnostic importance are feeble pulsation of the carotids and drooping of the eyelids. This form exists in general anemia, chlorosis and all forms of debility. (b) Hyperemic headaches, in which the pain is usually of a throbbing nature, with fullness of the head, flushed face, injected eyegrounds, irritability, sensory disturbances and increased heart's action. They exist in any condition that causes a rise of arterial tension, such as exposure to the sun, prolonged mental work, fever, excessive venery, etc. (c) Nervous or cerebral headaches, which resemble both the others, but differ from them in the fact that the circulatory disturbances are secondary to morbid changes in the brain substance; among the symptoms are malaise, irritability, digestive and visual disturbances, nausea, confusion of ideas and vertigo. (d) Toxic headaches due to poisons taken into the system from without, as lead, alcohol, etc., and poisons produced by the morbid process within the organism, as the headache of nephritis. The pain usually bears a direct relation to the amount of poison, the faculties of the mind are usually more or less affected, varying from a slight heaviness to delirium. Under the second subdivision he considered the headaches due to constipation, typhoid and cerebrospinal fevers, gout, diabetes, jaundice and syphilis. (e) Sympathetic headaches caused by ovarian and uterine disorders, hemorrhoids, decayed teeth, eye strain, nasal catarrh, intestinal parasites, slight digestive disturbances, biliousness, etc. (f) Headaches due to organic brain disease, in which the pain is usually circumscribed and accompanied by disturbances of sensation and motion, visual and mental impairment and vertigo, and headache with vomiting of a projectile character, in the absence of gastric disturbance, is strong presumptive evidence of organic brain disease. The most common lesions are arterial disease, syphilitic and other varieties of tumor, tuberculosis, cerebral softening, hydatids, meningitis and osseous formations within the cranial vault. Under the head of extracranial headaches he discussed: (a) Neuralgia, trigeminal and cervico-occipital, caused by heredity, wasting diseases, malnutrition, exposure, poor hygienic conditions, rheumatism, gout, diabetes, anemia, chronic malaria, acute infectious diseases, etc., caries and periostitis of nerve foramina, rheumatic influences affecting the nerve fibers, foreign bodies and growths, congestive and inflammatory conditions of the nerve sheaths and reflex irritation. (b) Osteal and periosteal headaches due to the ostitis and periostitis of secondary syphilis.

### Nasal Headache.

Dr. Lewis S. Somers considered neuralgia and cephalgia, and cited as the etiologic nasal factor, stenosis, either partial or complete, and acute or chronic sinusitis. He emphasized the importance of examination of the nose in cases of intractable headache, and stated that if the condition was relieved by the discharge of pus or mucus from the nose it was strong presumptive evidence of sinus involvement. The location of the pain is more frequently frontal than in any other position; the headache is not limited to any particular variety, and the seat of the pain is inconstant as regards the relative position of the disease and the pain, although the original seat of the pain is usually continued in the individual case. The intensity of the pain varies both as regards the individual and the periodicity, and if it is worse when there is increased purulent nasal discharge, should arouse suspicion in that direction. The pain is more likely, however, to be influenced by extraneous causes, such as irregular living, menstruation, etc. He considered in detail the causative factors of nerve pressure, stenosis, chronic obstruction due to foreign bodies, rhinoliths, tumors and hypertrophy of the turbinals, bending of the septum, vasomotor alterations, epistaxis, sinus involvement (on which he stated the great majority of nasal headaches are dependent) including empyema of the maxillary antrum, frontal sinus involvement, ethmoid disease and sphenoidal sinusitis, giving in detail the character and location of the pain in each of the several conditions. When sinusitis is the cause of the headache more than one cavity is apt to be involved and, therefore, if cephalgia or neuralgia be present, they are apt to be confusing, giving little indication of the site of the morbid process, and that other local or general facts must be eliminated before the nose can be shown to have a direct relation to the headache, and that one may have nasal disease with or without suppuration in the presence of continuous or intermittent headache and yet there be no relation at all between the two.

### Ocular Headache.

**Dr. Wendell Reber** referred to the frequency of headache and the fact that in many instances the victims thereof finally gave themselves up to the idea that nothing could be done for it. He referred to the classification of headaches by Leszynsky: 1, toxemic; 2, neuropathic; 3, reflex; 4, circulatory; 5, migraine, the ocular headaches falling under the third class. He described the supraorbital headache, and mentioned as causes thereof, anxiety, care, worry or excitement, the headache in some instances not appearing until the following day. He referred to the observations of de Schweinitz that 60 per cent. of the headaches due to errors of refraction are caused by astigmatism with other forms of ametropia, and stated that in his experience the sites of pain occurred with the following relative frequency: 1, Supraorbital; 2, deep orbital; 3, fronto-occipital; 4, temporal. In many instances there were no evidences of changes in the gross appearance of the eyes, and the lesser errors of refraction produced the worse headaches. The individuality of the patient and the character of the work done by him has much to do with the character and severity of the symptoms.

## CALIFORNIA ACADEMY OF MEDICINE.

*Regular Meeting, held February 28, 1905,*

The President, **Dr. Dudley Tait**, in the Chair.

### Tuberculosis of a Metacarpal Bone.

**Dr. Dudley Tait** exhibited a patient who had had tuberculosis of the metacarpal bone of the index finger, the nature of which had been demonstrated before operation by means of the *x*-ray. The diseased bone was excised and a pice of the radius was transplanted to take its place. The disease has been eradicated, and the functional result is fair, the main trouble being that the graft is already somewhat too short and seems to be shortening still more.

### Demonstration of X-Ray Plates.

**Dr. Lehmann** exhibited a number of *x*-ray plates, showing a tumor in the brain; several small, dense, sharply outlined spots in the lungs believed to be caused by lung stones; a number of bronchiectatic cavities in the lungs of a child.

### Two Unusual Cases of Gastric Carcinoma.

**Dr. W. F. Cheney** reported two cases of gastric carcinoma, which produced no symptoms referable to the stomach. In the one, a large nodular liver gave rise to the suspicion that the patient had syphilis and, later, to the diagnosis of carcinoma of the liver. In the other, a large tender mass in the region of the spleen proved. at autopsy, to be a perigastric abscess. Neither patient had any symptom referable directly to the stomach. In both cases the carcinoma was situated in the fundus.

**Drs. Geo. Gross** and **C. M. Cooper** referred to the test for occult blood in the stools as one which might have been of value in these cases.

**Dr. J. H. Barbat** recommended early operation on cases in which even a fair suspicion of carcinoma of the stomach is present.

**Dr. A. W. Hewlett** suggested that the reason that so few gastric symptoms were present in these cases was that the carcinomata had not produced an obstruction. Occult bleedings may occur, not only from carcinomata, but from ulcers of the stomach or intestines and even apparently from dilated stomachs.

**Dr. Cheney** stated that the blood may come from the food eaten. An exploratory operation should be done whenever a fair suspicion of carcinoma exists.

### Bicornate Uterus.

**Dr. Geo. Somers** reported two cases of bicornate uterus. In one the condition was suspected from the fact that on curettement the instrument passed into two distinct sacs at the apex of the uterus. Removal of the uterus for disease of the appendages confirmed this suspicion. In the second case, the diagnosis of myomata was made and operations showed two uterine bodies united below into one cervix. The history of this patient is of interest, firstly, because she menstruated about twice a month ever since the birth of her first child; and secondly, because the second pregnancy seemed to be different from the first. The uterus is enlarged distinctly to the left side, the patient suffered from considerable pain, and the pregnancy was terminated by a still-birth at term. Apparently the right uterus was impregnated in the case of the first child and the left in the case of the second.

### Intestinal Obstruction from Meckel's Diverticulum.

**Dr. Emmet Rixford** demonstrated a Meckel's diverticulum which had been the cause of an intestinal obstruction in a child. The diverticulum had attached to it a piece of fibrous tissue resembling a mesentery.

## CLEVELAND ACADEMY OF MEDICINE.

CLINICAL AND PATHOLOGICAL SECTION.

*Twenty-third Regular Meeting, held March 3, 1905.*

**Dr. W. E. Lower**, Chairman, Presiding.

### Congenital Hepatoptosis.

**Drs. T. W. Clarke** and **D. H. Dolley** cited the case of a woman, aged 35, who was admitted to the Lakeside Hospital for acute articular rheumatism. On examination a mass was made out on the right side, and was considered to be a hepatoptosis. The rheumatism improved, but the patient developed acute appendicitis, with ulceration, and died of general peritonitis. At the autopsy, ulcers, probably syphilitic, were found in the large intestine. The liver consisted of two lobes entirely separated, except for a thick fibrous band from which the lower lobe was suspended. This lobe possessed absolutely no other ligamentous attachment. The coronary and lateral ligaments were absent. In their place were reflections from the upper margin of the upper lobe. which in the normal liver would be the left lobe, running over to the diaphragm and forming a distinct meso-hepar. The suspensory ligament was attached along the left margin of the left lobe and to the interlobar ligament, as the authors named the band of fibrous tissue between the lobes, and this interlobar ligament was also joined by the round ligament. The fissure of the vena cava was situated in the upper posterior margin of the inner side of the upper lobe, instead of being on the right or lower lobe. The umbilical fissure and that of the ductus venosus were lost in the separation of the lobes. The gall-bladder fissure and the transverse fissure were present, but not in their normal positions. The quadrate lobe was represented, but the caudate and the Spigelian lobes were absent. The upper lobe contained multiple small gummata in its center, and there was a moderate grade of syphilitic cirrhosis. The liver was completely displaced from its normal position, so that the part which should be the right lobe, lying under the diaphragm, was the lowest portion, and hung from the left lobe, which took approximately the place of the right. The marked abnormalities in the positions of the fissures and the ligaments are such that the condition could not have resulted from the ordinary causes of splanchnoptosis, which were absent.

### Ectopic Pregnancy of Ten Months' Duration.

**Dr. F. E. Bunts'** patient, aged 31, had had a normal pregnancy in 1891, and no history of abortion at any time; last menstrual period, March 4, 1904. She developed chronic endometritis, and on May 16, abortion threatening, a curettage was done. No fetus was found, but some placental tissue. May 30 a tumor was felt, and on August 10 fetal movements were felt. September 27 pain was felt in the abdomen, and

December 4 hemorrhage began which lasted four days. January 17 the patient felt pain which was referred to the uterus. and it is supposed that fetal life ceased on this day. On account of the tumor at the side a diagnosis of fibroid was made and an operation was performed on February 21. A large cyst, resembling a dermoid, was found adherent to the uterus and to the intestines. On opening the cyst a seven months fetus was found enclosed in a sort of cyst wall resembling broad ligament rather than tube or ovary.

### Cysts of the Small Intestine.

Dr. E. M. Goodwin's patient, a girl of 21, had had cirrhosis of the liver for some time, and had had repeated tappings. The cysts were of the size of an orange and had a wall of peritoneum. Interesting cases were also presented by Drs. Corlett, Dittrick and Herrick. Dr. Feiss read a paper on "Limitations in the Interpretations of Radiograms."

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## EXPERIMENTAL MEDICINE SECTION.

*Seventeenth Regular Meeting, held March 10, 1905.*

Dr. H. C. Bliss in the Chair.

### Observations on the Digestive Power of Pepsin.

Dr. P. W. Cobb said that the activity of a pepsin solution (other conditions being equal) is proportional to the square root of the amount of pepsin present. This holds in the case of Mill's method, unless the pepsin concentration exceeds that required to digest 4 mm., or slightly less, of egg white in twenty-four hours, as may be shown by the use of pepsin solutions of known relative strengths. As the pepsin concentration exceeds this limit, the actual amount of digestion falls further and further short of the calculated amount.

This deficiency is far too great to be explained by the difficulty of diffusion of the solution in and out of the narrow (2 mm.) tubes which are used in the experiments, or by the exhaustion of the solution during the progress of the test. The question of the presence of inhibiting substances in the (commercial) pepsin used was considered in these experiments. By careful dialysis Dr. Cobb found that the digestive power of a very strong pepsin solution is increased two and a half times. This power is also increased by dilution with hydrochloric acid, but not to the same extent as by dialysis. The albumin froth method of pepsin estimation failed to give such results as claimed for by its authors. The relation of pepsin activity and hydrochloric acid concentration was investigated by means of Mill's method. It was found that for commercial hog's pepsin the maximum activity was shown when the hydrochloric acid was present to the extent of 0.25 to 0.3 per cent. The conclusion reached is that no estimation of the pepsin values, either absolute or comparative, can be reached until the possibility of the presence of inhibiting substances is completely excluded.

### Contributions to the Study of Experimental Diabetes.

Dr. Macleod stated that in order to determine whether atropin would prevent puncture diabetes, a rabbit was placed under the influence of the drug, and the fourth ventricle was punctured. No glycosuria followed until after three hours, when the atropin effect passed off, and sugar to the amount of 1 per cent. appeared in the urine. Re-administration of atropin caused the sugar to disappear. Further evidence of a mechanism independent of vasomotor changes in the liver was furnished by the fact that glycosuria follows stimulation of the central end of the cardiac depressor nerve. Since the glycogenic impulses may form connections in the sympathetic ganglia, it was thought possible that nicotin would also inhibit glycosuria by puncture. This was found to be the case, nicotinized rabbits not exhibiting any glycosuria when punctured. The action of the atropin and the nicotin was also studied on dogs rendered glycosuric by stimulation of the central end of the vagus, but neither drug was found to have any influence. It was further found that a marked fall of blood pressure such as that produced by extensive hemorrhage, also causes disappearance or, at least, a marked diminution of the glycosuria produced by stimulation of the central end of the vagus, in dogs and rabbits.

# Therapeutics

[It is the aim of this department to aid the general practitioner by giving practical prescriptions and, in brief, methods of treatment for the diseases seen especially in every-day practice. Proper inquiries concerning general formulae and outlines of treatment are answered in these columns.]

### Typhoid Fever.

Thomson, in an article in *Med. News* (abstracted in The Journal, April 8, p. 1147), on typhoid fever and its management, recommends early attention to the state of the kidneys by the administration of a reliable diuretic, and for this purpose he advises hot normal saline solutions per rectum twice a day. He uses four gallons of the solution at a temperature of from 115 to 120 F., with a return flow instrument. By this method the course of the fever, according to his comparative statistics, has changed for the better. In some cases acute nephritis develops comparatively early and constitutes a serious complication with uremic coma, therefore the kidneys must be carefully watched and such remedies administered as may be necessary.

In the first stage of the fever intestinal disinfection is necessary and a calomel purge should be given every other night until the middle of the third week, combined as follows:

℞. Hydrarg. chloridi mitis.............gr. v |30
Pulv. jalapæ co..................gr. xxxv 2|30

M. Ft. pulvis No. i. Sig.: One such powder every other night as a disinfectant.

The foregoing, according to the author, promptly checks diarrhea and lowers the temperature in the first week, often from one to three degrees. It also promotes renal elimination. After the middle of the third week it should be omitted owing to the risk of hemorrhage.

#### FEEDING.

The starvation plan is a preposterous one, according to Thomson, and the nutrition of the muscular system should be maintained in the best state possible, as that includes nutrition of the heart, on which so much depends. The peptic power of the stomach is decreased to a greater extent than in almost any other disease, including even carcinoma, according to the experiments of Fenwick, who found in some cases postmortem not a trace of pepsin. The only food, therefore, is a liquid diet, and milk is the best, diluted one-half with lime water, with the addition of sodium chlorid. Lime water is an antiseptic and counteracts the tympanites. Besides lime water the author recommends scale pepsin in five-grain doses (.30), or saccharated pepsin in ten-grain doses (.65), every three hours for twenty-four hours, which is certainly of great value in keeping up the nutrition of the patient.

The systematic employment of intestinal antiseptics is of great importance. Bismuth is the most serviceable of these disinfectants, as it is non-irritating and has local sedative properties which can not be said of the other preparations such as salol. From ten to twenty grains of the subcarbonate of bismuth combined with the pepsin is the best method of administration given every three hours, or from 80 to 160 grains (5.30-10.65) daily. If tympanites is persistent, the sulphocarbolate of soda may be added in five-grain (.30) doses.

When the first sign of dryness at the tip of the tongue appears, the oil of turpentine in from 15 to 20 minim doses (1-1.30) is also given in mucilage every three hours till the tongue is moist again.

Alcohol is recommended in the form of whisky for cardiac weakness. The author objects to repeated small doses, such as half an ounce, but prefers an ounce at a time, repeated every three hours and given in milk. In the beginning alcohol should be given only after midnight; later, in the evening, and still later on, as the disease progresses, in the afternoon, and recommends that it be omitted in the forenoon. It is only a temporary stimulant for prostration, consequently he recommends the large doses to produce the required amount of stimulation. Strychnin, when given as a routine and persistent cardiac stimulant, produces harm, and it is well to stop its use every few days to note its effect on the heart's action. In marked cardiac debility the following combination is recommended:

| | | | | |
|---|---|---|---|---|
| ℞. | Strych. sulph | gr. ss | 2 | |
| | Caffeinæ citratis | gr. xxxvi | 2 | 65 |
| | Sparteinæ sulph | gr. xv | 1 | |
| | Ext. taraxaci q. s. | | | |

M. Ft. pil. No. xx. Sig.: One pill every three hours.

The most certain of all cardiac stimulants, according to the author's experience, is camphor given hypodermically in doses of seven and a half grains each (.50) combined as follows:

| | | | | |
|---|---|---|---|---|
| ℞. | Camphoræ | gr. viiss | | 50 |
| | Olei amygdalæ (sterile) | m. xx | 1 | 30 |

M. Sig.: To be used subcutaneously at one dose and repeated once an hour to once in three hours, as may be indicated.

He recommends the Brand bath at a temperature of 70 F. as the best means of promoting elimination by the kidneys. The patient should be placed in the bath when the temperature reaches 102.5 F. and allowed to remain according to its effects. If the temperature drops from one to two degrees while in the bath he should be taken out, although he has been in the bath only five minutes. It should never be allowed to drop to 100 F., as it continues to fall after he is removed from the bath. On the other hand, if the temperature should rise instead of falling, after he has been in the bath for ten minutes, he should be allowed to remain in the bath until it begins to fall, though it may require half an hour to do so. Severe shivering should not be given any attention, and a good remedy to shorten this condition after the bath is a teaspoonful (4.00) of Hoffman's anodyne combined as follows:

| | | | | |
|---|---|---|---|---|
| ℞. | Spts. etheris co | ʒi | 4 | |
| | Aq. camphoræ | ℥i | 30 | |

M. Sig.: At one dose immediately after removal from the bath.

Some patients can not take cold baths on account of the pulse remaining weaker after the effects of the bath have been recovered from, than before it was taken. In such cases a warm bath from 95 to 98 F. is recommended if it will reduce the temperature; if not, the cold bath must be given fearlessly. He states that he has seen more bad results from timidity in using cold baths than from their excessive use. The only non-indication for Brand's method is the occurrence of intestinal hemorrhage.

With the first sign of intestinal hemorrhage the following is recommended:

| | | | | |
|---|---|---|---|---|
| ℞. | Argenti nitratis | gr. v | | 30 |
| | Pulv. opii | gr. v | | 30 |
| | Terebinthinæ resinæ | ʒiii | 12 | |
| | Liq. kali | ʒi | 4 | |

M. Ft. pil. No. lx. Sig.: Three pills at one dose.

The object of the turpentine in the foregoing combination is to prevent the absorption of the silver salt until the pill reaches the intestine. The author believes that these pills are of service both in checking hemorrhage and in preventing perforation. After the hemorrhage has been checked for thirty-six hours the baths should be resumed.

In the third and fourth weeks the patients complain of aching over the body due to the absorption of the subcutaneous fat leaving the nerves more exposed to pressure. This aching is best relieved by spreading sheepskins with wool on them, or buffalo robes, on the bed and over that a sheet, for the patient to lie on.

As a mollifacient the author recommends the following combination as a liniment:

| | | | | |
|---|---|---|---|---|
| ℞. | Ol. cinnamomi | ʒi | 4 | |
| | Aq. calcis | Oi | 500 | |

M. Sig.: Apply locally after warming the solution.

The foregoing should be applied once daily, and if applied to the back twice daily it is of service in preventing the development of bedsores.

The dangers to be looked for after the patient has reached the middle of the second week are: 1, Death due to continued hyperpyrexia; 2, tympanites, with or without diarrhea; 3, severe toxemia, with prostration, low fever, feeble heart, etc.

In the first instance the patient should be dealt with just as in cases of sunstroke, by keeping him in an ice bath for 15, 30, 40 or 48 minutes. The second tendency (tympanites) would indicate about one-half the average amount of milk and smaller quantities at a time. Five grains resorcin (1.30) given in an ounce of sweetened water three times a day, with the dose of bismuth doubled and in some cases with the addition of sodium sulphocarbolate five grains (.30) is advised. In the third case the following combination is of service:

| | | | | |
|---|---|---|---|---|
| ℞. | Tinct. ferri chloridi | m. xx | 1 | 30 |

Sig.: To be taken at one dose, and repeated four times a day. And:

| | | | | |
|---|---|---|---|---|
| ℞. | Quin. sulph | gr. iii | | 20 |
| | Calcii sulphidi | gr. 1/6 | | 01 |

M. Sig.: One such dose four times a day along with the iron. Camphor should be used as a cardiac stimulant.

### *Simple Sycosis.*

Hall, in an abstract in *Ther. Gaz.*, recommends, as the best treatment close shaving daily and has obtained great success by this method; it must be kept up for several months. After a short time the patient will overcome the difficulty of shaving over the sore patches. Very hot water, prolonged lathering and previous oiling of the face helps to soften the beard. A boracic acid lint fomentation should be applied over the whole chin and cheek, covered with gutta-percha tissue and kept in place by means of a handkerchief carried around and tied at the top of the head and so worn at night. In the daytime the following should be applied:

| | | | | |
|---|---|---|---|---|
| ℞.. | Zinci oxidi | ℥i | 30 | |
| | Glycerini | ʒii | 8 | |
| | Lotio plumbi | ℥ss | 15 | |
| | Aquæ rosæ q. s. ad | ℥iv | 120 | |

M. Ft. lotio. Sig.: Apply locally after shaving.

By means of the foregoing treatment, according to the author, the face soon becomes sightly and speedy improvement will take place. The only drawback is the slothfulness of the patient in his daily attentions and daily close shaving.

### Menstrual Pain of Virgins.

In the treatment of menorrhagia in virgins the *Ther. Rev.* recommends fifteen minims (1.00) of the fluid extract of senecio in a hot infusion of lemons. As soon as the menstrual period appears the patient is put to bed, poultices containing laudanum applied to the abdomen, and suppositories containing the following inserted:

| | | | | |
|---|---|---|---|---|
| ℞. | Ext. cannabis indicæ | | | |
| | Ext. belladonnæ, āā | gr. 1/15 | | 004 |
| | Olei theobrom. q. s. | | | |

M. Ft. suppos. No. i. Sig.: One such suppository inserted as often as necessary.

As a substitute for the foregoing suppository enemata containing laudanum are recommended, or the following:

| | | | | |
|---|---|---|---|---|
| ℞. | Tinct. viburni prunifolii | | | |
| | Tinct. piscidiæ erythrinæ, āā | gtt. x | | 65 |

M. Sig.: To be taken at one dose in a hot infusion.

For the accompanying lumbar pains the following ointment is recommended:

| | | | | |
|---|---|---|---|---|
| ℞. | Spts. chloroformi | ʒiiss | 10 | |
| | Olei moschi | | | |
| | Essentiæ caryophylli, āā | ʒi | 4 | |
| | Spts. etheris | ʒiv | 15 | |
| | Alcoholis | ℥iii | 90 | |

M. Sig.: To be applied locally to the lumbar region with thorough friction.

## *Medicolegal*

### Giving Eddyite Treatment Is Practice of Medicine.

The Supreme Court of Ohio holds, in State of Ohio vs. Marble, that the giving of "Christian Science" treatment, for a fee, for the cure of disease is practicing medicine within the meaning of the statute regulating such practice in this state. The statute making it a misdemeanor to give such treatment for a fee is not an interference with the rights of conscience and of worship, conserved by section 7 of the bill of rights, and is not on that ground unconstitutional. Legislation prohibiting any one from treating a disease for a fee. excepting such persons as have qualifications, is a valid exercise of the police power of the state, and is constitutional. The act regulating the practice of medicine in this state exacts reasonable qualifications and excludes no one possessing them, and it is not void as discriminating against Eddyites in that it prescribes that any one possessing certain qualifications may practice osteopathy and does not make especial provision for those who wish to practice Eddyism.

The court says that the right to practice medicine has been so long and so universally subject to state regulation that it might almost be said to be not an absolute right, but a privilege or franchise. Assuming, however. that it is an absolute right, it was conceded to be subject to such reasonable regulations or conditions as the state in the exercise of the police power may prescribe. The Ohio statute provides that "Any person shall be regarded as practicing medicine or surgery or midwifery within the meaning of this act, who shall use the words or letters 'Dr.,' 'Doctor,' 'Professor,' 'M.D.,' 'M.B.,' or any other title. in connection with his name, which in any way represents him as engaged in the practice of medicine or surgery or midwifery, in any of its branches, or, who shall prescribe, or who shall recommend for a fee for like use any drug or medicine. appliance, application. operation or treatment. of whatever nature, for the cure or relief of any wound, *fracture or bodily injury, infirmity or disease." It was contended that the word "treatment" was to be given its meaning as used in the practice of medicine and that as so read it means the application of remedies to the curing of disease,* that a remedy is a medicine or application or process; that process is an action or operation and that prayer for the recovery of the sick is neither. Technically this may be correct but the science of medicine has made some advance since the time Macbeth wished to throw physic to the dogs because his doctor could not cure a mind diseased but told him "Therein the patient must minister to himself." Nowadays physicians cure imaginary diseases by means that would as easily as Eddyism escape the above definition. What Eddyism is we do not know. The practice of it is referred to as treatment by its followers. If its followers call it treatment they ought not to be heard to say it is not. Dr. O. W. Holmes (Med. Ess.) says: "Disease is to be treated by anything that is proved to cure it." The statute of 1896 had been held in this court not to comprise the practice of osteopathy and by a lower court not to apply to Eddyism. So that the use of the words "of whatever nature" in the amendment are quite significant and this court has no doubt the legislative intent was to bring within this definition every person who for a fee prescribed or recommended a cure for disease even though the cure was to come not from himself but, through his intercedence, from God. The next contention was that the statute interfered with the defendant's right to worship God according to the dictates of his conscience. The Supreme Court says it is to be observed that the statute does not prohibit the prescribing or recommending the treatment except for a fee and the court is not advised that it is a part of the defendant's religion to exact a fee as well as to pray. But if the inhibition of the statute tends to the public welfare and is not obnoxious on other grounds it is not within the provision of section 7 of the bill of rights that "All men have a natural and indefeasible right to worship Almighty God according to the dictates of their own conscience . . . nor shall any interference with the rights of conscience be permitted."

Taking up the question of whether the act, in so far as its application to Eddyism is concerned, is a valid exercise of the police power, the court says that the practice of medicine may be regulated by legislation has been decided in every court in which the question has arisen. But it is said that the offering of prayer to God for the recovery of the sick is not against public health or public morals or public safety or public welfare. Admitted. But is that a correct statement of the case? If the defendant prayed for the recovery of Hehl that was the treatment he gave him for the cure of his rheumatism and for which Hehl paid him. He was practicing healing or curing disease. To assume that legislation may be directed only against the administering of drugs or the use of the knife is to take a too narrow view. The subject of the legislation is not medicine and surgery. It is the public health *or the practice of healing. The state might make it an offense,* as has been done in New York, for any one to omit to furnish medical attendance to those dependant on him. and at the same time leave him his liberty to die in any manner he may choose. But this is not all. While the state may not deem it wise to go to the extent of requiring the individual to avail himself of the services of a physician yet it may not wish to hasten his death and so to transfer to itself the burden of supporting those dependent on him by making it possible for him to employ an empiric.

Again, where there is an infectious or contagious disease and the public welfare may be vitally affected by a failure promptly to recognize it, and so the state is interested in permitting to practice the art of healing only those possessing recognized qualifications. So that. regarding disease rather than the treatment of it as the subject of the legislation, it is not necessary that the statute be preventive of particular practices, but it may make the right to undertake the treatment of disease dependent upon the possession of reasonable qualifications. Then it was contended that Eddyism is a recognized system or school of healing, and that the statute is unconstitutional, on the ground that it discriminates against Eddyism, *or in favor of certain schools of medicine. The court says* that if it is correct in the conclusion that disease and not the method of its treatment, is the subject of the legislation, then it is putting the cart before the horse to say that every school of healing must be recognized. That the legislature, in its wisdom, might prescribe a uniform examination the court does not doubt, and that it may recognize one school without recognizing all, is also true, if the recognition be in the exercise of proper classification and for the public welfare, and not with a view to create a monopoly in the schools recognized or a discrimination against other schools. The court fails to find anything in the present act that discriminates against Eddyism. It does not provide for a special examination and limited certificate for the Eddyite practitioner, but he may obtain a certificate to practice medicine upon the same conditions as any other person and there is nothing in the act requiring him to use the knowledge after he acquires it. To admit that a practitioner may determine what treatment he will give for the cure of disease and that the state may examine him only respecting such treatment would be to defeat the purpose of the statute and to make effective legislation of this character impossible. If the present statute is too comprehensive the remedy is with the legislature. The conclusion reached is supported by State of Nebraska v. Buswell, 40 Neb. 158. and the following recent decisions throw more or less light on such legislation: The People v. Blue Mountain Joe, 129 Ill. 37L; Williams v. The People, 121 Ill. 84; The People v. Gordon, 194 Ill. 560; Bragg v. The State, 134 Ala. 165; The State of Iowa v. Barr, 112 Iowa, 466; The State of Kansas v. Wilcox, 66 Kan. 711; *State of Maine v. Bohemier, 96 Me., 257; People V. Reetz,* 127 Mich., 87; State v. Biggs, 133 N. C., 729; 98 Am. St. 731, monographic note. State v. Heath, 101 N. W. 429.

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# Current Medical Literature

## AMERICAN.

Titles marked with an asterisk (*) are abstracted below.

### Medical Record, New York.

*April 1.*

1 Relation of the Nervous System to Visceral and Trophic Phenomena. J. Fraenkel, New York.
2 *Perineum, Perineorrhaphy, and Prolapse. A. Sturmdorf, New York.
3 *Compound Traumatic Separation of the Lower Epiphysis of the Femur. G. G. Cottam, Rock Rapids, Iowa.
4 *Value of the Present *Quantitative Tests for Hearing*; with Demonstration of a New Apparatus. W. S. Bryant, New York.

5 *Rapid Bacteriologic Diagnosis of Diphtheria. H. A. Highley, Brooklyn.
6 *Best Method of Administering Potassium Iodid. M. Huebner, New York.
7 *New Remedy for Ulcerative Processes, Acute and Chronic, Including Pulmonary Tuberculosis. H. W. Mitchell, New York.

2. **Perineorrhaphy and Prolapse.**—To facilitate accurate readjustment of original anatomic relations, Sturmdorf advises the preliminary introduction of guide sutures. At some convenient moment prior to the descent of the fetal presenting part from two to three silkworm sutures are introduced under proper precautions into the structures between vagina and rectum, from the cutaneous base of the perineum to its apex. The lowest suture running on a line with the anterior anal margin serves to locate the several sphincteral ends; the median suture embraces the levator fibers, while the upper one tends to coaptate the vaginal lesion. In passing these preliminary sutures neither the vaginal nor the rectal walls should be punctured. In late operations the surgical objective point is the broad anterior loop of the levator ani, which, springing from the posterior surface of the pubic rami, passes downward and embraces the lateral and posterior wall of the vagina. Under all conditions of perineal rupture the pubic attachments of this levator loop present permanent palpable ridges. With these ridges serving as guides to the muscle, the postero-lateral muco-cutaneous junction of the vagina is severed and the deep seat of lesion exposed by carefully raising the cicatrized vaginal openings. Utilizable remnants of the levator muscle can thus be readily located, and after isolation and trimming, should be coaptated by buried end-to-end suture. Having secured muscular readjustment, the raised vaginal flap is allowed to settle into position, and then only should such of its redundant tissue be sacrificed as may not be utilized in restoring the contours and bulk of the vagina and perineum. Trimming and suturing should be limited as far as possible to the cicatrices and lateral sulci, preserving the median aspects of the vaginal walls as much as possible.

3. **Traumatic Separation of Lower Epiphysis of Femur.**—Two cases of this kind are reported by Cottam, occurring in children aged 6 and 5 years respectively. In both cases the lower epiphysis of the femur was torn off completely. In the first case it was necessary to resort to wiring; in the second case reduction and immobilization was sufficient. At the nineteenth week the joint function of the first patient was fully restored and the boy could walk and run without perceptible limp. At the present time there is slight knock-knee on the injured side owing to unequal growth of the inner and outer aspects of the shaft of the femur. The second case is too recent to permit of any final observations.

4. **Quantitative Tests for Hearing.**—A new accoumeter for making quantitative tests for hearing is described by Bryant. The machine allows the operator to determine accurately the limit at which the patient is able to hear with sufficient distinctness to repeat the words spoken into the machine. Distance is no longer needed for the voice tests. The accoumeter provides a sure method of detecting feigned deafness. It also gives a test for hyperacousis, and it also measures the psychologic factor in audition. Eyesight aids are eliminated. It furnishes a test which does not vary and which can be multiplied and repeated indefinitely.

5. **Bacteriologic Diagnosis of Diphtheria.**—A method of arriving at a rapid diagnosis of diphtheria by means of stained smears made directly from the false membrane present is described by Higley. The smears must be as thin as possible and must be thoroughly washed and dried between the applications of the stains used. The material for the smears is obtained by means of a strong wire-loop needle, the wire being flattened by filing so as to form a sort of curette. The smear is made in a drop of distilled water. Two stains are used. No. 1, 5 drops of Kuehne's carbolic methylene blue in 7 c.c. of water; No. 2, 10 drops of carbol-fuchsin in 7 c.c. of water. Fix the smear with the flame in the usual manner. Apply stain No. 1 for five seconds, wash with water and dry with filter paper. Apply stain No. 2 for one minute, wash, dry and mount in balsam. The stains must be absolutely fresh. The diphtheria bacilli, if present, appear as dark red or violet rods, irregularly stained, and often containing polar dots. The epithelial cells are stained a bright red. Other micro-organisms may appear of the same color as the diphtheria bacilli, but the unevenness of contour of the latter and its mode of division obviates confusion in diagnosis. When properly carried out the diagnosis can be made in fifteen minutes.

6. **How to Administer Potassium Iodid.**—Huehner says that the method of administering potassium iodid should differ in accordance with the purpose for which it is given. For therapeutic purposes potassium iodid should always be given in solution, well diluted, and, if possible, never on an empty stomach. Milk is the best diluent, but compound syrup of sarsaparilla, mineral water or ordinary pure water may be used. The drug must be pure. Many bad effects are due to impurities. By observing strict cleanliness of the skin, disagreeable skin eruptions to a large degree may be prevented. Where accurate dosage is of importance it is safer to prescribe a 50 per cent. solution, two drops to equal one grain of the drug. Potassium iodid should never be given in phthisis or when there is even a suspicion or tendency to phthisis. In children it is best to give the drug very frequently in small doses, one-fourth of a grain every hour, rather than infrequently in large doses. A very convenient way is to dissolve the daily dose to be taken in twenty-four teaspoonfuls of water and have the child take one teaspoonful every hour while awake, and two or three teaspoonfuls on awakening after a two or three hours' sleep. In this way a six-months-old child may take as much as 15 or 30 grains in twenty-four hours for a long time without inconvenience. Special plans of administration are described for syphilis, locomotor ataxia, chronic endarteritis, asthma, nephritis, lead poisoning, rheumatism, gout and neuralgia.

7. **New Remedy for Ulcerative Processes.**—The remedy advocated by Mitchell is a solution of chlorobromid of sodium prepared as follows: To a convenient quantity of water add 3 per cent. sodium chlorid, 0.1 per cent. bromin and 0.5 per cent. hydrochloric acid (C. P.). Subject this mixture to the action of an electrical current until such chemical action has taken place within the mixture as to convert all free bromin into a compound with the other elements present. The resulting fluid is pale amber in color, with a strong odor of chlorin, a slightly acid taste and a specific gravity of 1,022. It must be kept in amber colored bottles in a cool place and tightly corked. Mitchell has used this solution locally with very satisfactory results in chronic ulcers of the leg, regarded as hopeless, suppurative bubos which had resisted all other methods of treatment, and ulcerative cervical endometritis. He has also administered it by mouth in pulmonary tuberculosis. It seems to have the power to check ulcerative processes in the lung and, if the disease is not too far advanced, ultimately to effect a cure. It must be given in free doses for a considerable period of time, from one to one and a half ounces four times daily, before each meal and at bedtime, on a stomach which is completely empty. One hundred cases were treated in this way and the results were satisfactory.

## New York Medical Journal.

*April 1.*

8 Concerning the New Electro-cystoscope. W. K. Otis, New York.
9 *Treatment of Acute Tuberculous Spondylitis in Infants and Young Children. D. D. Ashley, New York.
10 Recent Advances in Electro-therapeutics. W. J. Morton, New York.
11 Two Dipsomaniacs; Illustrating two Dipsomaniac Phases. T. H. Evans, Philadelphia.
12 *Management of Pneumonia in Infants and Children. C. G. Kerley, New York.
13 Influence of Infected Milk in the Diet of the Sick—Particularly in Acute Infections Diseases. Report of a Series of Cases of Milk Infections in Typhoid Fever Patients. (Concluded.) D. L. Edsall, Philadelphia.
14 *Some Clinical Deductions from the Performance of Ninety Alexander Operations with Abbe's Modification. H. P. Epstein, Newark, N. J.
15 Cerebrospinal Meningitis in Cattle. P. Shekwana, Iowa City, Iowa.

9. **Acute Tuberculous Spondylitis.**—The method employed by Ashley differs in some particulars from any procedure heretofore described. The child is supported, face downward, in the horizontal position, the body at right angles to a table, the upper third of the thighs resting near the edge of the table. Extension is made on the head and arms, the arms at right angles to the body, and counterextension on the feet, *always sufficient to overcome any sagging of the body in* lordosis. The kyphosis is gently pressed downward until nearly or quite obliterated, no considerable force being employed. A snugly fitting stockinet shirt is then applied over a rubbing bandage; over this is adjusted a felt pad amout three inches wide, extending the length of the spine, and felt pads cover the anterior superior spine. These are secured by one layer of sheet-wadding bandage, and over all is applied a light, closely fitting plaster-of-paris jacket, extending from the top of the sternum to the symphysis pubes. *The spine is held in* superextension until the setting of the plaster by one hand pressing down on the region of the kyphosis and the other pressing upward on the upper part of the sternum, slightly flattening the thorax. The patient is then transferred to a Whitman frame, which is bent to conform to the plaster. The cast is trimmed like an ordinary jacket, except that it is left longer than usual in front, there being no intention that the child shall assume the sitting position. After the jacket is well hardened *an oblong fenestra is cut out in front*, extending from the center of the gladiolus to about two inches below the umbilicus. In case any considerable kyphosis has been reduced a small fenestra is cut out at the back over the knuckle If the kyphosis is high dorsal or cervical the plaster is extended to the head and adjusted well to the occiput, the neck being moderately superextended and the head secured in position by a coronal band. The patients are confined on the frame for from six to eight months, after which they assume *a semi-sitting position* by elevating the head of the frame. The plaster is changed at intervals of from three to four months, the skin being kept clean in the meantime by the rubbing cloth. Careful attention should be given to prevent any disturbance of digestion. Some of the advantages claimed for the use of the plaster-of-paris jacket and the modified Calot procedure are: 1. The deformity and spasm are immediately overcome and the spine is placed in the position which is most conducive to the healing process. 2. The spine is securely held in position, and there is no undue flattening of the pelvis. 3. The necessary handling of the child is done with the least possible disturbance to the spine. 4. It conserves the labors of the surgeon and permits the treatment of patients from a distance where frequent observation is impossible. 5. The capacity of the thorax is increased, and pressure on the vital organs *is relieved. 6. Paraplegia, with hardly an exception,* becomes less or entirely disappears. 7. In marked deformity, when the angle of flexion is so great as to render the supine position almost intolerable, the reduction of the kyphosis makes this position at once comfortable.

12. **Pneumonia in Infants.**—The first step advocated by Kerley is to establish a sickroom régime, avoiding extreme measures. Temperature is controlled by the use of a pack; the temperature of the water should be 90 F. As heart stimulants he uses strychnin and strophanthus, when they are indicated, in heart weakness. The application of counterirritants to the skin over the thorax is of service in cases in which there is evidence of much bronchial congestion and bronchial spasm. Kerley uses the old-fashioned mustard plaster, repeated every six hours, usually *for the first forty-eight hours. After this* time it is used less frequently or discontinued. Expectant drugs should be given with great care, and when used should be prescribed in tablet or powder form. For a child 1 year of age Kerley occasionally gives 1/100 grain of tartar emetic and 1/40 grain of ipecac after feeding. In case the cough is severe and teasing and not relieved by steam inhalations, a small quantity, ¼ to ½ grain of Dover's powder may be added to each dose. In the treatment of pneumonia in the young he says the degree of success is measured in large part by the physician's ability to adapt the child to the unusual conditions caused by the presence of the disease.

14. **Deductions from Ninety Abbe-Alexander Operations.**—Of a series of 90 patients operated on according to this procedure, Epstein has delivered 18 women without a relapse in any case. In 76 cases which he has had the opportunity of seeing no relapse has occurred. In 42 cases the operation was performed for simple retroversion. Curettage was supplemented for the attendant endometritis. In 20 cases retroversions were accompanied by prolapse in which, in addition to curettage, anterior and posterior colporrhaphy was added; in 8 cases excision of hemorrhoids was performed, and 4 divulsions for fissure in ano were done. In 4 cases considerable annoyance was caused by pain in the scars; 2 cases required the dissection of the genital branch of the genito-crural nerve, owing to its inclusion in the cicatrix; the other 2 cases responded to mild galvanism.

### American Medicine, Philadelphia.

*April 1.*

16 *Treatment of Cerebrospinal Fever. C. G. Stockton, Buffalo.
17 *Dessertation on Temperament, Diathesis, Dyscrasia, Predisposition, Cachexia, Susceptibility, Idiosyncrasy and Heredity. (Concluded.) H. Wakefield, New York.
18 *Peritoneal Adhesions. C. Beck, New York City.
19 *Treatment of Hemoptysis. F. Hare, London.
20 Some Observations on the Treatment of Chronic Diseases. C. Pope, Louisville, Ky.
21 *[illegible] Its Relations to Heredity. H. E. [illegible]
22 [illegible] Child, Occluding Both Nostrils. W. G. B. Harland, Philadelphia.

16. **Treatment of Cerebrospinal Fever.**—Stockton says that in the treatment of this affection the sanitarian is more useful than the therapeutist. Furthermore, the difference in virulence in different epidemics accounts for faulty notions arising as to the effects of measures of treatment. The most useful procedure is the bringing about of the best hygienic condition for the patient, such as: 1. Absolute quiet in a well ventilated, darkened room. 2. Giving the greatest attention to securing the proper performance of the various functions of the body. 3. The trial of the hot baths, after the method of Aufrecht, in all cases in which they seem to do good. 4. The practice of intraspinal puncture with drainage, when necessary, to relieve severe pressure symptoms, to be repeated, if needed, provided benefit follows the first puncture. 5. The use of antipyrin in cases in which the temperature is raised, not only for the relief of the pyrexia, but also for the mitigation of headache and hyperesthesia. In Stockton's experience the drug has also proved useful in improving the mental state, and it has not been followed by the expected depression. 6. The use of opium or of the bromids alone, or in combination with antipyrin, *for the relief of convulsions, pain hyperesthesia, and the* pressure symptoms *generally*, which are not relieved by other methods of treatment. 7. The use of mercury, when needed, for its laxative effect, or to assist in stimulating the organs of elimination.

17. **Temperament, Diathesis, Dycrasia, Etc.**—Wakefield reviews these various states and attempts to introduce, as a new *conception of the* involved problems, a definite and orderly biologic-retrogressive series of physical manifestations, constituting the symptomatologic expressions of the phases and stages of the pathology of catabolism, *including* an analysis of etiologic homogeneity. Clinical illustrations and quotations *supplement* his premises. He contends that protoplasm, both of unicellular life and of the parenchyma of the higher animals, obtains density in proportion to normal cell maturity and suffers expansion and elongation in *ratio to its* sub-catabolism. Susceptibility to parasitic infection is attributed to tissue atony and the *morphologic* changes of subcatabolism. Heredity he defines as substantially a congenital structural expression, and denies that diseases are specifically inherited.

18. **Peritoneal Adhesions.**—Beck shows that adhesions forming *after* repeated attacks of appendicitis and after operations on the abdominal or pelvic organs, may *give rise to* symptoms which may be mistaken for enteroptosis, pelvic neuralgia, or

even for ulcer and carcinoma of the stomach, or cholelithiasis. Sometimes differentiation is simply impossible. These adhesions form more frequently in the ileocecal region than elsewhere.

19.—See The Journal of Oct. 22, 1904, p. 1265.

21. **Tumor and Heredity.**—An interesting case is cited by Radasch. The patient, a girl, new-born, had a turnip-shaped growth at the second joint of each little finger connected to the skin by a short pedicle. A few days after birth one of these tumors was accidentally pulled off. Its stump bled freely, showing that the vascularity of the tumor was considerable. Investigation of the family history disclosed that the mother at birth possessed just two such tumors on the outer surface of each little finger at the second joint. Her mother at birth also possessed such tumors. The wall of the tumor was comparatively thick. The tumor mass was dark red and appeared to be attached to the wall at one point and was much smaller than the tumor itself. On microscopic examination the tumor was seen to consist of epidermis, derma and central connective tissue. For about two-fifths of the circumference of the growth the epidermis was detached and formed a wall. The central mass seemed to be made up from a large number of darkly staining fibers or bundles, resembling somewhat voluntary striated muscle. The tumor, from its position, seemed to resemble a supernumerary finger, but neither cartilage nor bone was found. The central mass of connective tissue, however, responded to both the Van Gieson and the elastica stain. The tumors were transmitted through the female side and to the female only.

### Medical News, New York.

*April 1.*

23 *Coagulation of the Blood. L. Loeb, Philadelphia.
24 *Nephritis Complicating Mumps. J. A. Miller, New York.
25 Status of Suprarenal Therapy. S. Floersheim, New York.
26 "Specific Therapy of Tuberculosis." C. Denison, Denver.
27 *Intestinal Ileus with Strangulation. R. R. Huggins, Pittsburg.
28 Case of Large Parovarian Cyst, and Two Cases of Large Ovarian Cysts. F. C. Hammond, Philadelphia.

23. **Coagulation of the Blood.**—A review is presented by Loeb of the more recent investigations regarding the coagulation of the blood, with a consideration of what is usually termed the theory of the coagulation of the blood.

24. **Nephritis Complicating Mumps.**—According to Miller, acute nephritis complicating mumps may occur in either children or adults, and is much more frequent in males than in females. The parotitis is usually double and mild in character, and the nephritis is more liable to occur during early convalescence. Exposure to cold may be a predisposing factor. The nephritis is usually moderately severe, of less than one week's duration and ending in complete recovery. Rarely it may develop into chronic nephritis, or it may be so severe as to cause death. He advises that careful examination of the urine should be made and that strict precautions against exposure should be taken in all cases of mumps, both during the acute stage of the disease and during convalescence.

27. **Intestinal Ileus with Strangulation.**—Four cases are reported by Huggins to show the marked contrast in the result between early and delayed operative treatment. The two patients operated on made a rapid and uneventful recovery, whereas the two patients treated on the expectant plan succumbed.

### Boston Medical and Surgical Journal.

*March 23.*

29 *Treatment of Appendicitis. Can We Wait for Localization when the General Peritoneal Cavity is Involved? C. A. Porter, Boston.
30 *Remarks on Appendicitis. M. H. Richardson, Boston.
31 *Some Observations on Appendicitis. R. H. Fitz, Boston.
32 *Choice of Method of Opening the Abdomen in Appendicitis. F. B. Harrington, Boston.
33 *Immediate Operation vs. Delay in Acute Appendicitis. G. W. W. Brewster, Boston.
34 Subphrenic Abscess as a Complication of Appendicitis. H. L. Burrell, Boston.
35 Bacteriology of General Peritonitis. T. J. Manahan, Boston.
36 Results of Operative Treatment of General Peritonitis Following Appendicitis at Massachusetts General Hospital During the Past Five Years. W. C. Quinby, Boston.
37 Results of Medical Treatment of Peptic Ulcer at the Boston City Hospital. G. G. Sears, Boston.
38 Angio-neurotic Edema: Report of a Case Operated on During an Abdominal Crisis. F. B. Harrington, Boston.
39 *Observations on Pneumonia with a Report of Two Fatal Cases of Extrapulmonary Suppuration. Suggestions for Treatment. D. E. Keefe, Springfield.
40 Eclampsia. W. R. Gilman, Worcester.

29. **Treatment of Appendicitis.**—Porter's paper may be summarized as follows: Purgatives should never be given in acute appendicitis before operation. Ochsner's treatment is the best to adopt from the onset of an attack, to carry out when operation is refused, and to employ after operation in almost all cases. Until the superiority of conservative treatment has been satisfactorily demonstrated immediate operation will be urged by the majority of surgeons in most cases of acute appendicitis in all stages. The present tendency of surgery is to become more and more conservative. Conservative treatment may be advised in certain cases of acute appendicitis in which the symptoms of rapid septic absorption are out of all proportion to the evidences of peritonitis. Also, when there is evidence of recent improvement, or the condition and surroundings of the patient are unfavorable for operation. Ochsner's treatment should be advised in most cases of spreading or diffuse peritonitis when a reasonably good surgeon can not be obtained. Irrigation of the general peritoneal cavity should not be undertaken unless the conditions are such that it can be thoroughly performed. It is indicated in recently diffused processes, particularly if the previously unirritated peritoneal cavity has been suddenly infected through rupture of an abscess. It may be used in some cases of spreading infections without adhesions, though local operation is probably preferable. After irrigation the danger of increased absorption is best prevented by a tube or cigarette drain to the bottom of the pelvis or, in women, vaginal drainage, with exaggerated Fowler's position for from twenty-four to thirty-six hours. The rapidity with which local operation with pelvic drainage and Fowler's position can be performed makes it the method of choice in very serious cases, in those with marked distension, and in operations outside of hospitals. Ochsner's routine, with turpentine stupes to the abdomen, is the best treatment for the first forty-eight hours after operation.

30. **Remarks on Appendicitis.**—Richardson considers the indications for operation, the cause of death, the objection to operative treatment and the remedy for the evils of indiscriminate operating by inexperienced men. In the past year out of 112 operations he had 3 deaths. Of the total number a large majority were interval operations in which he has had as yet no deaths, although the total number is nearly a thousand. His total mortality for the past year, between 500 and 600 operations of all kinds, was 17.

31. **Observations on Appendicitis.**—The question of immediate operation versus delay is answered by Fitz as follows: The physician is justified in delay until the conditions call for an immediate operation. These may be present at his first visit or may not appear until a later period. If, after twenty-four hours, there is no improvement, and especially if the fever increases, an immediate operation is preferable to further delay.

32. **Method of Opening Abdomen in Appendicitis.**—Harrington considers McBurney's gridiron incision ideal for a large majority of the interval operations. If more room is needed the incision may be enlarged, the so-called extended McBurney incision. In nearly every case of appendicitis Harrington makes it a rule to enter the free abdominal cavity beyond the appendix and the inflammatory mass in order to examine for secondary abscesses and to determine the condition of the rest of the abdomen. If the appendix mass extends beyond the semilunar line it is better to open the abdomen by a vertical incision through the rectus sheath and separate the rectus muscle or to retract it. If it extends to the middle line or beyond, Harrington opens in the middle line. The rectus incision for the interval operation is a good one, but has the objection that if drainage is found to be necessary the oblique and transversalis muscles, when they contract, tend to spread the opening in the rectus muscle and sheath.

33. **Immediate Operation vs. Delay in Acute Appendicitis.**—Basing his deductions on the experience derived from 240 operations, Brewster concludes that delay is indicated in mild cases in which there is no doubt about the recovery without operation, and that immediate operation is indicated in all other cases of acute appendicitis.

39. **Treatment of Pneumonia.**—Keefe describes a method of treatment of which he claims to be the originator. It is his custom in treating unilateral pneumonia to give virtually no medicine. The patient is instructed to lie on the side of the sound lung, thus favoring the emptying of the vessels of the lung by means of gravitation, while ice is applied to the affected side. The medicinal treatment, especially during the first stage, should consist of: 1, One active purge; 2, wet or dry cups or leeches; 3, free use, all over the affected lung, of as strong counterirritants as can be borne comfortably; 4, veratrum viride to bleed the lungs into the abdominal and general capillaries, or the direct abstraction of blood from a vein, followed, if necessary, by infusion. A few doses of morphin may be indispensable in pleuropneumonia. Plenty of fresh air should be admitted, but the body covering should be sufficient to promote perspiration and dilatation of the superficial capillaries. He does not use digitalis, ammonia or whisky in any stage of the disease.

### Lancet-Clinic, Cincinnati.

*April 1.*

41 *Transverse Fascial Incision for Operations in the Pelvis. E. Ries, Chicago.
42 Electro-magnet in Ophthalmic Surgery. R. Sattler, Cincinnati.
43 Penetrating Wounds of Eyeball, with Presentation of Specimens, F. W. Lamb, Cincinnati.
44 Cancer of Rectum Treated by Sigmoido-proctectomy. G. W. Roberts, New York.
45 Recent Illustrative Experiences in Abdominal Surgery. C. A. L. Reed, Cincinnati.

41.—See abstract in The Journal of November 5, p. 1409.

### St. Louis Medical Review.

*March 25.*

46 Appendicitis; Cancer of the Breast; Empyema. R. T. Morris, New York.
47 Two Cases of Lateral and Sigmoid Sinus Thrombosis, One with Jugular Exsection. Recovery Notwithstanding Meningeal Symptoms. C. Jackson, Pittsburg.
48 Rupture of Gall Bladder (Spontaneous and Traumatic; with and Without Operation); Historical Review of 273 Cases. (Continued.) B. M. Ricketts, Cincinnati.

### American Journal of the Medical Sciences, Philadelphia.

*April.*

49 Syphilis of Lung. T. A. Claytor, Washington.
50 Some Aspects of the Theories of Immunity. B. H. Buxton, New York City.
51 Recurrent Oculomotor Palsy. W. G. Spiller and W. C. Posey, Philadelphia.
52 Myasthenia Gravis, with Paralysis Confined to the Ocular Muscles. W. G. Spiller, Philadelphia, and E. U. Buckman, Wilkesbarre.
53 Myasthenia Gravis; A Case Involving the Eyes Only. M. Frank, Chicago.
54 Myxedema Following Exophthalmic Goiter. N. B. Foster, New York.
55 Result of Removal of Spleen. J. W. Hunter, Jr., Norfolk, Va.
56 Advances in Technic of Roentgen-ray Therapy. C. L. Leonard, Philadelphia.
57 Universal Congenital Atrichia. A. A. Eshner, Philadelphia.
58 Primary Carcinoma of Omentum with Peritonitis Carcinomatosa. A. Sturmdorf, New York City.
59 Hypertrophy and Stenosis of Pylorus in Infants. F. L. Wachenheim, New York City.
60 Dermoid of the Female Urinary Bladder. J. Block and F. J. Hall, Kansas City, Mo.
61 Two Cases of Ulcerative Perforation of Rectum Originating from a Gonorrheal Salpingitis. J. Otradovec, Chicago.
62 *Dietetic Use of Predigested Legume Flour, Particularly in Atrophic Infants. D. L. Edsall and C. W. Miller, Philadelphia.
63 Poisoning by Potassium Cyanid; Three Cases. J. I. McKelway, Long Island.
64 Eventration of Diaphragm. J. Sailer and R. D. Rhein, Philadelphia.

62. **Use of Predigested Legume Flour.**—According to Edsall and Miller, bean flour in which the starch is predigested by means of a diastatic ferment seems to be well digested and absorbed by infants and adults. An extremely concentrated food may be given in this way in fluid and partially digested form; a 20 per cent. solution, although fluid, is practically equivalent to beefsteak in nutritive value. Its influence on the digestive tract of infants in the cases studied was usually distinctly favorable, and its influence on metabolism both in infants and adults is, at least, equal to that of milk. Of fifteen infants treated one did not gain; one gained rapidly, but had an intercurrent illness and the flour was stopped; one gained nine ounces and then almost ceased to gain. The others gained as follows: One, fifteen ounces in six days; one, thirteen ounces in six days, both continuing after the bean flour gave out; one, one and a half pounds in sixteen days; one, one and a half pounds in twenty-three days; one, one and a half pounds in seventeen days; one, over two pounds in four days, and, after readmission, twelve ounces in eleven days; one, one and a half pounds in twenty days; one, twelve ounces in eleven days; one, four ounces in three days; one, one pound in seven days; one, one pound in eight days, and one, one and one-half pounds in three days. All these were atrophic infants that had previously been stationary or losing. A child of 2 years that had had persistent and very dangerous disturbance of digestion with advanced malnutrition improved immediately, the child repeatedly gaining over two pounds a week. One point that appears to be of some importance is that one can administer in this way as much as from 0.75 per cent. to 1 per cent. of proteid, a fact of decided consequence in cases in which it is difficult or impossible to administer a proper amount of milk proteid.

### The Illinois Medical Journal, Springfield.

*March.*

65 Cure of Inguinal Hernia. M. L. Harris, Chicago.
66 Scrofulous Ulcers of the Legs. W. F. Somerville, Glasgow, Scotland.
67 Nervous Sequelæ of Influenza. J. Grinker, Chicago.
68 Epidemic Smallpox. J. J. Conner, Pana, Ill.
69 Hysteria and Neurasthenia; Diagnosis and Treatment. C. W. Rutherford, Newman.
70 Leucocytes and Their Diagnostic Significance. H. E. Monroe, Shelbyville, Ill.
71 *Accidental Perforation of Uterus. H. E. Cushing, Champaign.
72 Treatment for Fracture of Patella. M. R. Barker, Chicago.

72. **Fracture of Patella.**—Barker has devised a method for treating fracture of the patella which has proven satisfactory in 20 cases. Figure 1 shows the manner of application of the cast above the upper fragment. Beneath the roller bandage (b) next to the skin, is placed a layer of cotton wadding torn in strips and applied the same as a roller bandage. To the skin above the wadding the ends of adhesive strips are fastened, the other ends being brought over the wadding and fastened to the roller bandage. Another turn of the bandage covers the lower ends of the strip. Strips of adhesive plaster are thus worked into the bandage over the whole length of the cast covering as much as possible of the quadriceps muscle. The plaster is applied over this foundation. As the plaster is applied two pieces of bandage are worked into the cast, one on each side of the leg, and brought out in loops as shown in Figure 2. Two pulleys on each side of the leg are attached to the loops and thus fastened to the cast. A sash cord or small rope is fastened to the footrest, passed around the pulley b and fastened to the loop in the cast below the patella. The footrest is adjusted to the foot by the knots, and to it is attached a rope which passes over a pulley at the foot of the bed and which has attached to it a sufficient weight to

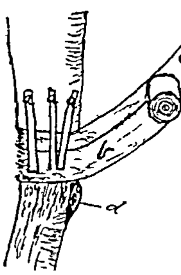

Fig 1.

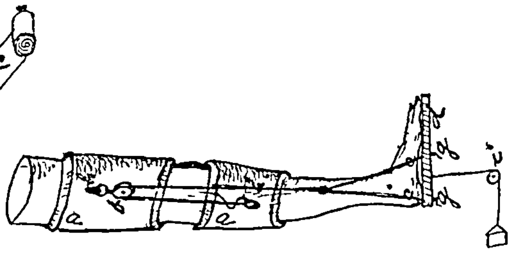

Fig 2.

Fig. 1.—a. a. a. Adhesive strips. b. Cotton roller bandage. c. Cotton wadding bandage. d. Fractured patella.

Fig. 2.—a. a. Plaster casts. b. Pulley. h. Loops. d. Footrest and spreader. c. c. Ropes. g. g. Knots in ends of ropes. l. Pulley.

hold the fragments of the patella together. The cast below the patella is applied in the usual manner without the adhesive strips. The advantages claimed for this treatment by Barker are that a large portion of the quadriceps is grasped and firmly held by the adhesive strips worked into the cast, and when the cast is pulled down the upper fragment is brought down by pulling on the quadriceps rather than on the upper fragments, thus disturbance of circulation in the upper fragments is prevented. The lower casts hold the lower fragment firmly. The inconvenience of a long posterior splint is avoided and the patient is comfortable all the time and may be turned on his side. The apparatus is inexpensive and can be applied in a short time. The method does not take the place of the open method with sutures when that is indicated, but where the open method can not be used for any reason this one is the best.

### Northwest Medicine, Seattle, Wash.

*March.*

73 Brain Cysts, with Report of Two Cases. W. House, Portland, Ore.

### Iowa Medical Journal, Des Moines.

*March 15.*

74 Pleural Empyema. A. M. Pond, Webster City.
75 Some Advances in the Treatment of Urinary Diseases. G W. Jones, Keokuk.
76 Pneumonia. J. K. Milbourne, Clinton.
77 Cancers. G. G. Burdick, Chicago.
78 Case of Neurasthenia. F. S. Spearman, Whiting.

### The Medical Sentinel, Portland, Ore.

*March.*

79 Concerning Genito-Urinary Tuberculosis; Report of Five Cases. G. S. Whiteside.
80 Should the Plea of Insanity Shield the Culprit in the Commission of Crime? J. L. Hill.
81 Henoch's Purpura. S. E. Josephi, Portland.
82 Treatment of Fractures. G. F. Wilson, Portland.

### The Medical Herald, St. Joseph, Mo.

*March.*

83 Type of Operation in Gall-Bladder Disease. B. B. Davis, Omaha, Neb.
84 Control of Tuberculosis. H. M. Bracken, Minneapolis, Minn.
85 Nerve Injury Following Pressure and Mild Trauma. C. R. Whitney, Fonda, Iowa.
86 A Few Conditions of Importance Incident to Acute Phases of Insanity. J. M. Barstow, Council Bluffs, Iowa.
87 Observations on Surgery of Kidney. D. S. Fairchild, Clinton, Iowa.
88 Etiology and Treatment of Hypospadias. A. C. Stokes, Omaha, Neb.
89 Early Passive Motion and Massage in the Treatment of Fractures Involving Joints. F. H. Hornibrook, Cherokee, Iowa.

### Woman's Medical Journal, Toledo, Ohio.

*March.*

90 Gastro-Enteric Infection. L. K. Hutchins, Freeport, Ill.
91 Diagnosis and Management of Transverse Presentation in the Later Months of Pregnancy. C. J. Baker, San Diego, Cal.

### The Journal of Cutaneous Diseases, New York.

*March.*

92 Fordyce's Disease. C. J. White.
93 The Mould of Dermatitis Coccidioides. D. W. Montgomery.
94 Multiple Sebaceous Cysts: A Case. A. McPhedran, Toronto.

### Cleveland Medical Journal.

*March.*

95 Clinical Report of Nine Cases of Diabetes Insipidus. T. B. Futcher, Baltimore.
96 Diagnosis and Treatment of Intestinal Perforations in Typhoid. R. H. Harte, Philadelphia.
97 The Typhoid Mortality of Cleveland for the Year 1904. G. W. Moorehouse.
98 Subcutaneous Injection of Paraffin in Facial Deformity and in Atrophic Rhinitis. S. H. Large, Cleveland.

### Canada Lancet, Toronto.

*March.*

99 Sketch of the Beginning of Medical Education in York (Toronto). W. B. Geikie, Toronto.
100 Arthritis Deformans. F. W. E. Burnham, Winnipeg.
101 Progress of Medical Science During the Past 35 Years. W. H. Moorhouse, London, Ont.
102 Pharmacology—General Consideration of the Modifiers of Nutrition. Prof. Bouchard, Paris.
103 The Home in Its Relation to the Tuberculosis Problem W. Osler, Baltimore.
104 Goiter in a Newborn Child W. T. Burns, Toronto.
105 Eyestrain from the Physician's Point of View. G. H. Burnham, Toronto.

### Journal Missouri State Medical Association, St. Louis.

*March.*

106 Phlebitis Following Abdominal and Pelvic Operations. R. M. Funkhouser, St. Louis.
107 The Seborrheic Process. J. Grindon, St. Louis.
108 Case of Hydrophobia. B. A. Wilkes, St. Louis.
109 Pulmonary Tuberculosis with Special Reference to Its Early Diagnosis and Home Treatment. J. T. Anderson, Leeton, Mo.
110 Medical Treatment of Appendicitis. E. F. Hauck, St. Louis.
111 Pneumonia. John D. Seba, Bland, Mo.

### Memphis Medical Monthly.

*March.*

112 Puerperal Eclampsia. C. A. Turner, Dyersburg, Tenn.
113 Puerperium. I. A. McSwain, Paris, Tenn.
114 What Is the Value of a Urine Examination? W. Krauss, Memphis, Tenn.
115 Water Internally, an Aid to Secretion, Elimination and Digestion. T. J. Happel, Trenton, Tenn.
116 Perineal Prostatectomy—Report of a Case. A. A. McClendon, Marianna, Ark.
117—Hemophilia—Report of a Case. D. A. Mohler, Lake Village, Ark.
117½—Id. F. J. Runyan, Clarksville, Tenn.
118 Periodical Vomiting and Dyspepsia. M. Goltman, Memphis, Tenn.

### The Journal of the Kansas Medical Society, Lawrence.

*March.*

119 Eye Malingering. J. S. Weaver, Kansas City.
120 The Perineum. J. E. Hunt, Atchison.
121 Management of Breech Presentations. H. J. Stacey, Leavenworth, Kan.
122 Nasal Obstructions. J. E.. Sawtell, Kansas City, Kan.
123 Immunity. (Continued.) G. H. Hoxie, Lawrence, Kan.
124 Chorea. S. S. Glasscock, Kansas City.
125 The Consultant, Conventional and Ideal. O. P. Davis, Topeka, Kan.

### Buffalo Medical Journal.

*March.*

126 What Medicine Is Accomplishing To-day. H. D. Wey, Elmira, N. Y.
127 Practical Use of the Ophthalmometer. L Burrows, Buffalo.
128 Electro-Magnet in Eye Work. A. C. Snell, Rochester.
129 New Genitourinary Table. E. W. Ruggles, Rochester.

### Journal of the Mississippi State Medical Association, Vicksburg.

*March.*

130 Treatment of Lobar Pneumonia. W. C. Brewer, Columbus.
131 Pseudo-Diphtheria. E. W. Flowers, McComb City.
132 Influenza, Lagrippe or Russian Fever. W. H. Doty, Blackhawk.

### Northwestern Lancet, Minneapolis.

*March 15.*

133 Headache: Cause and Cure, with Illustrative Cases. E. F. Reamer, Mitchell, S. Dak.
134 Undescended Testes: Report of Cases. W. Courtney, Brainerd, Minn.
135 Some Principles of Modern Treatment of Curvature of Spine. E. S. Geist, Minneapolis.
136 Removal of Iron and Steel from Parts of the Body Other Than the Eye by the Use of the Giant Magnet; Report of Two Cases. F. C. Todd, Minneapolis.

### New Orleans Medical and Surgical Journal.

*March.*

137 Etiology of Acute Prostatic Inflammation and Suppuration. G. F. Lydston, Chicago.
138 Is the Etiology of Tubercular Adenitis and Hodgkin's Disease Identical? J. R. Briggs, Dallas, Texas.
139 Value of Antiblennorrhagic Drugs in Gonorrheal Urethritis. A. Nelken, New Orleans.
140 Diagnosis and Medical Treatment of Cholelithiasis. J. A. Storck, New Orleans, La.

### Atlanta Journal-Record of Medicine.

*March.*

141 Causes of Appendicitis. J. N. LeConte, Atlanta.
142 Tuberculosis. J. R. Briggs, Dallas, Texas.
143 The Doctor, the Child and the Community. M. McH. Hull.
144 Need for Medical Organization in Georgia. J. N. McCormack, Bowling Green, Ky.

### Dominion Medical Monthly, Toronto.

*March.*

145 Surgical Treatment of Renal Tuberculosis. H. A. Kelly, Baltimore.
146 The Finsen Light, Roentgen Rays and High-Frequency Currents in the Treatment of Skin Diseases. G. Chambers, Toronto.

### Old Dominion Journal of Medicine and Surgery, Richmond, Va.

*March.*

147 Radium: Its Radiations, Physical, Chemical and Mental. W. H. Taylor, Richmond, Va.
148 Causes and Symptoms of Nasal Obstruction. J. P. Davidson, Richmond, Va.

### Texas Medical Journal, Austin.

*March.*

149 Modern Therapeutics and Pharmacy. F. Hadra, San Antonio.
150 Reminiscences of an Old Doctor. J. M. Fort, Paris, Texas.
151 Etiology and Treatment of Puerperal Eclampsia. F. S. Martin, Beaumont, Texas.
152 Strangulated Hernia in Man of 85—Operation. G. Harwood, Johnson City, Texas.

## FOREIGN.

Titles marked with an asterisk (*) are abstracted below. Clinical lectures, single case reports and trials of new drugs and artificial foods are omitted unless of exceptional general interest.

### British Medical Journal, London.

*March 18.*

1 Present Teaching of Practical Midwifery in England. W. R. Dakin.
2 *Some Remarks on Puerperal Infection. A. W. W. Lea.
3 Increasing Use of Lead as an Abortifacient: Thirty Cases of Plumbism. A. Hall.
4 *New Methods of Studying Affections of the Heart. James Mackenzie Burnley.

2. **Puerperal Infection.**—The method of treatment adopted by Lea is based on 120 cases. He says a rise of temperature to 101 F., not accounted for by other causes, renders a careful examination of the generative tract necessary. If no sufficient cause is found in the vagina or perineum, and if the uterus is bulky and tender, a specimen of the lochia is removed and a uterine douche given, with due precautions. In 48 consecutive cases this was sufficient in 30 per cent. to bring down the temperature rapidly to normal. For some years Lea has supplemented this by careful swabbing of the interior of the uterus with absorbent wool soaked in a solution of biniodid of mercury in alcohol, 1 in 2,000. If this procedure is inefficient, or if the infection is severe, from the first, the uterus is explored with the fingers, preferably under chloroform anesthesia. If the cavity is perfectly smooth, showing an absence of retained products or of decidua—a condition which is rare—the uterus should be thoroughly swabbed out with the biniodid or some strong antiseptic solution, and packed with iodoform gauze soaked in an antiseptic. If a piece of placenta is found this should be removed, followed by swabbing and gauze packing. If the cavity is large and the surface irregular, due to hypertrophied and necrotic decidua, the patient's safety can only be insured by its complete removal. This is most efficiently done by the use of a suitable curette. Vaginal section may be done as supplementary to curettage if symptoms of pelvic peritonitis are present. If the uterus contains placenta or débris, accompanied by grave infection, hysterectomy is much more dangerous than curettage, and packing should never be done. The best results from hysterectomy have been obtained in cases of periuterine suppuration, gangrene of the uterus, or necrotic myomata.

4. **New Methods of Studying Heart Affections.**—In this paper Mackenzie discusses the action of digitalis on the human heart, particularly in regard to rhythm. He found that if the stimulus conduction or "dromotropic effect" of the heart muscle is normal, digitalis can not affect it. He has pushed the drug in many cases until other functions of the heart were affected, and until severe gastric disturbances resulted, without the slightest sign of conductivity being delayed. When conductivity is depressed digitalis may still further depress this function with great readiness. Patients suffering from slight depression of conductivity for years, with a regular heart rhythm, are exceedingly susceptible to the influence of digitalis, and a very small quantity of the drug may produce an arrhythmia due to the dropping out of the ventricular systoles. The auricle continues to contract with perfect regularity, but the stimulus occasionally fails to cross the fibers that connect auricle and ventricle.

### The Lancet, London.

*March 18.*

5 Industrial Anthrax. T. M. Legge.
6 Physiology and Treatment of Surgical Shock and Collapse. J. P. Lockhart, Mummery.
7 Changes Produced by Inflammation in the Conjunctiva. M. Stephen, Mayou.
8 *Nature and Treatment of Epilepsy. W. A. Turner.
9 Mental Faculty in the Child; Its Growth and Culture. F. Warner.
10 *Acute Encephalitis and Perforation of the Sigmoid Flexure in Typhoid. J. McCrae.

8. **Nature and Treatment of Epilepsy.**—Speaking of epileptic equivalents, a term which really signifies a psychical state that in some degree takes the place of an epileptic seizure, Turner says that it is necessary to distinguish between postparoxysmal psychoses, or mental phenomena following convulsive seizures, and psychical epileptic equivalents, or phenomena taking the place of ordinary epileptic seizures. The occurrence in the family history of similar or of allied conditions, interchangeable with forms of genuine epilepsy, or their association in the same person with the classical types of epilepsy, and the existence of definitely epileptic characteristics, such as sudden onset, transitory duration and irregular periodicity, may be accepted as sufficient reasons for regarding psychical clinical manifestations as epileptic equivalents. The best known and the most striking form of epileptic equivalent is that which is described as automatic wandering or epileptic ambulatory automatism. The condition more closely resembles the somnambulistic state than any other; so much so that some states of somnambulism in adults appear to be epileptic in character. Turner says that the condition known as narcolepsy, or periodical falling asleep, should also be regarded as an epileptic equivalent, and the close relation which exists in some cases between epilepsy and migraine leads him to the belief that some forms of migraine should be classified as epileptic equivalents. The scientific treatment of epilepsy should consist in more than an endeavor to subdue the convulsive element of the disease by drugs. As far as the treatment of the seizure is concerned, there is no single specific remedy, although the bromids come nearest to this definition; however, the influence of bromid salts on epileptic fits is variable. Bromid medication may arrest the seizures immediately or within a brief period of their administration. If any case is capable of arrest by treatment a satisfactory response will be apparent soon after the commencement of bromid treatment. Of 86 cases in which the fits were arrested for periods varying from two and a half to twenty-five years, rather more than 50 per cent. yielded to treatment within the first twelve months of regular bromid medication. Bromids may lessen the severity and frequency of the attacks, may change the time incidence of the seizures, or may exert no influence at all or may even make the attacks worse. The treatment should be commenced at the earliest possible time after the onset of the attacks and should be continued as long as is necessary in each case, but not less than two years. If benefit does not follow a daily dose of from 45 to 60 grains of one, or a combination of the bromid salts, some other remedy should be sought. Turner does not approve of large doses of bromids. The grand mal seizure is most amenable to their influence, the petit mal attacks and psychical equivalents being little influenced. In serial epilepsy and in the status epilepticus, chloral in combination with the bromids forms the most effective remedy, while in the postparoxysmal psychoses the bromids are of little service. Of the several forms of diet recommended in epilepsy, Turner has found that of salt starvation the most satisfactory. There are some cases in which the number of attacks is diminished during the continuance of the treatment, and others in which the improvement lasted after the diet was stopped. The chief disadvantage of the diet is its monotonous character, but as a relief to dyspeptic symptoms, it has been found distinctly useful. The chief feature of the method lies in the [illegible] minution of the bromid dose,
from 20 to 30 grains of one o [illegible] se salts at bedtime being
sufficient. The most satisfacto [illegible] nagement of the disease,
says Turner, is that which is [illegible] out in special institu-
tions or under the care of a [illegible] d and sensible nurse
or attendant. As important a [illegible] c remedies, are con-
genial employment, hygienic m [illegible] nd suitable amuse-
ments.

10. **Unusual Occurrences in** [illegible] first case cited
by McCrae developed a diphtl [illegible] at on the sev-
enth day, the cultures giving [illegible] heria bacillus.
On the thirteenth day blood [illegible] re growth of
the typhoid bacillus, an the [illegible] was present.
Death occurred on the fou teenth [illegible] opsy it was
found that the entire le [illegible] be of the
brain was occupied by a oft d [illegible] definitely
marked off from the surrounding [illegible] ough the

brain tissue showed much blood, no evidences of nuclei of the original tissue and a general necrosis with hemorrhage into its site. The usual lesions of typhoid were also found. All the organs showed gas bubbles; in fact, the body was bloated beyond recognition by the effects of the *Bacillus aerogenes capsulatus*. The second case gave a positive Widal reaction on the ninth day. Abdominal pain was complained of on the eleventh, twenty-sixth, twenty-eighth and twenty-ninth days of the disease. There was tenderness and slight distension of the whole abdomen, but no rigidity. An hour later the pain in the lower abdomen was very severe, rigidity and tenderness were present all over the abdomen, and a diagnosis of perforation was made. A small perforation was found in the sigmoid flexure, which was repaired. The patient died a few hours later.

### Journal of Tropical Medicine, London.

*March 15.*

11 Case of Mycetoma. G. A. Williamson.
12 Endemic Enlargement of Os Calcis in Formosa. J. L. Maxwell.
13 Measles Epidemic in Fiji during 1903. G. W. A. Lynch.

### Intercolonial Medical Journal of Australasia, Melbourne.

*February 20.*

14 *Volvulus After Appendectomy. R. A. Stirling.
15 A Tack in the Right Bronchus for Nine Months. A. J. Wood.
16 Half-penny in Esophagus for Seventy-six Days. H. D. Stephens.
17 *Value of Ergot in Midwifery. J. W. D. Hooper.
18 Insolation in Infants. W. H. Summons.
19 Early Tubal Pregnancy; Abortion; Recovery. J. W. D. Hooper.

14. **Volvulus After Appendectomy.**—Stirling cites two cases of volvulus occurring after appendectomy. The first patient, seven weeks after the operation, when apparently quite well and walking about, suddenly felt a severe pain in the epigastrium. The next day he began to vomit, constipation became absolute and remained so for six days. On opening the abdomen a number of adhesive bands were seen stretching between the lower part of the ileum and the lateral wall of the iliac fossa. The dilated ileum filled the whole pelvis and was twisted into a horeshoe-shaped mass. The obstruction was readily overcome by untwisting the dilated coils, the operation was concluded in the usual way and the patient made a rapid and uneventful recovery. The second patient had had two previous attacks of appendicitis and was operated on in the "cold stage." On the evening of the ninth day she complained of pain in the epigastrium, later vomiting, with great prostration and absolute constipation. On opening the abdomen the small intestine was found to be everywhere distended and congested, and at the cecal region a collapsed loop of ileum was found adherent to the cecum, being glued to it by a wide band of omentum. The pelvis was completely filled with a volvulus of the small intestine, so dilated that, in one part, the serous coat had given way for several inches. This patient also recovered.

17. **Ergot in Obstetrics.**—In secondary hemorrhage, due to separation of thrombi in the uterine vessels, not associated with deciduoma malignum, Hooper believes that the free administration of ergot and strychnin hypodermically are necessary. For posthemorrhagic shock ergot must not be used, reliance being placed on increasing the fluid in the blood vessels by transfusions of normal, sterilized salt solutions, and stimulating the heart by strychnin and alcohol. In uterine inertia, during the second stage of labor, it is wise not to give ergot, but to secure a sound sleep for the patient, to empty the bladder and rectum, and to apply forceps early, so as to lessen the risk of hemorrhage. The preparations of ergot which have given Hooper most satisfaction are Tanret's ergotinin, dose 5 to 10 minims, injected into the muscle; its active principle is said to be cornutin, and it is seldom followed by suppuration at the site of puncture; or a dose of 1/30 of a grain of citrate of ergotinin administered in similar manner; and asepticized ergot, administered hypodermically. Ergot should never be administered until the source of the hemorrhage is accurately ascertained. It is unwise to give ergot to a patient who has renal inadequacy, or a diminished output of urea or albuminuria. By greater care during the puerperium, and especially by not allowing the second stage to be unduly prolonged, there is little reason to fear hemorrhage during the third stage or later; and if it does occur, and the uterus contains no retained portions of placenta or membranes, Hooper uses the hot water irrigation of the uterus advocated by Milne-Murray, supplemented by firm control of the fundus uteri through the abdominal wall, and then, he says, an injection of ergotinin may be given into the gluteus muscle.

### Presse Médicale, Paris.

*Last indexed page 506.*

20 (1905, No. 1.) Fièvre typhoide galopante. H. Roger and M. Salomon.
21 *Pathogénie et traitement du rhumatisme chronique articulaire. C. Parhon and J. Papinian.
22 *Insuccès apparents ou momentanés de la digitale. Rouslacroix.
23 (No. 2.) *Les neurofibrilles d'après la méthode et les travaux de S. Ramon y Cajal. L. Azoulay.
24 Traitement du catarrhe de la trompe d'Eustache par l'air chaud (hot-air treatment of eustachian tube). M. Lermoyez and G. Mahu.
25 Metal Tape Tourniquet.—Nouvel appareil hemostatique stérilisable permettant de régler et de vérifier l'hemostase. R. Lhomme.
26 (No. 3.) *Rupture traumatique de la rate (of spleen). M. Auvray.
27 Le réflexe cutané abdominal au cours de la fièvre typhoide et de l'appendicite chez l'enfant (in children): J. A. Sicard.
28 (No. 4.) *L'ulcère malgache. Ulcère phagédénique des pays chauds (tropical ulcer). Fontoynont and E. Jourdean.
29 *Les sérums non spécifiques dans le traitement des tumeurs. Tuffier.
30 *Thérapeutique physique des hémorrhoides et de leurs complications. A. Zimmern.
31 (No. 5.) Tics et sommeil (sleep). R. Cruchet.

21. **Thyroid Treatment of Chronic Articular Rheumatism.**—A man of 47 had long suffered from pain and stiffness in the knees and other joints. Of all the various measures to relieve him of this trouble and also of an annoying eczema, large doses of sodium bicarbonate proved the most successful for a time, but they induced dyspeptic disturbances. The constant sensation of cold, dryness of the skin and the hypoazoturia suggested the possibility of thyroid insufficiency, and under thyroid treatment marked improvement was soon apparent. The pains vanished, the skin became soft and moist and the nails grew normal. Lancereaux, Claisse and others have reported similar success with thyroid treatment in certain cases of chronic articular rheumatism. The defective functioning of certain organs with an internal secretion, such as the thyroid and ovary, may have more to do with the origin of certain cases of articular rheumatism than has been recognized hitherto. Parhon remarks that there seems to be an antagonism between the ovary and the thyroid. When the function of one is defective or suspended altogether, then the functioning of the other becomes exaggerated. In regard to the production of urea, however, both of these organs favor its formation or its elimination. The proportion eliminated in the urine is diminished in case of both thyroid and ovarian insufficiency. This diminished output of urea may be a favorable condition for the development of chronic rheumatism. He is convinced that the thyroid gland takes some active part in the assimilation of lime, while the ovary favors its dissassimilation. Hypofunction of the thyroid gland provides favorable conditions for the development of chronic rheumatism and also of certain forms of nephritis. A nephritic with edema, oliguria, albuminuria and low freezing point of the urine was put on thyroid treatment with the result that the amount of urine increased from 300 to 1,700 gm. and the albuminuria dropped from 6 gm. to zero. Viala has called attention to the action of thyroid treatment in the stimulation of the circulation, increase in the secretions and in the elimination of organic effete matters, reduced weight in proportion to the superactivity of the metabolic processes, and the attenuation or disappearance of the joint symptoms.

22. **Digitalis.**—"Not too much nor too little, nor too long nor too continuously" was Huchard's maxim in regard to digitalis. His "digitalis test" is the giving of 25 drops of digitalin in every case of arterial or endocardial cardiopathy when compensation begins to fail. If the test is negative.

that is, if the heart does not show any tonic effect from it, then other heart tonics are required, strophanthus or spartein. Rouslacroix outlines treatment as follows: In case of transient trouble, with a resistant myocardium, he gives large doses of digitalis in progressively smaller doses (constant effect). This is followed by a period of repose on a milk diet, returning to the digitalis in case of a new attack of asystolia. In case of chronic trouble, with a degenerated or sclerotic myocardium, he commences with the digitalis test and if the myocardium does not respond properly to the test he gives spartein and strophanthus alternately for a week. When the heart has been steadied, he then gives the digitalis in a single large dose (25 to 50 drops in two doses), then follows with repose on a milk diet. Whenever the myocardium shows signs of wavering, then the heart tonics should be resumed first, and later the digitalin. The official digitalin to which he refers contains 1 mg. of active principle in 50 drops of the alcoholic solution. He cites an instructive case to show how digitalis failed at first, but after the interposition of the heart tonics then the digitalis was able to exert its specific action and the patient was kept in comparatively good health by resumption of this alternate medication at need, with intervals of repose.

23. **Cajal's Study of Neurofibrils.**—Azoulay has published four preceding articles on this subject, in Nos. 59, 68, 74 and 80 of the last volume. The illustrations show the neurofibrils in the leech. The delicate neurofibrils all have their obvious use and he was unable to detect anything like the terminal. elementary, smaller fibrils which Apathy has reported. Even if they do exist, Cajal says, they must be enclosed in a sheath of cellular protoplasm like all the others. This sheath prevents the direct contact of the neurofibrils with each other. If the neurofibrils inside the sheath conduct, it can only be by a kind of induction. This is the same dilemma of pure physiology which confronted him in his study of the neurofibrils in vertebrates.

26. **Splenectomy by Resection of Cartilaginous Edge of Thorax.**—Auvray has cured 2 patients with ruptured spleen by prompt splenectomy, and 8 similar cases have been published in France, as he relates. In 2 other cases, the same intervention followed wounds of the spleen. He advocates his technic as affording better access and better postoperative results. He commences with a median incision and then carries it around under the costal arch. He then cuts the cartilage of the ninth rib with scissors and raises each stump, detaching from it the muscles attached to its rear surface. He gives his reasons why this severing of the cartilage is more effectual for the purpose than resection of the ribs. He resected the cartilaginous margin of the thorax for an extent of 10 cm. in his last case, and recovery after the splenectomy was remarkably rapid and smooth.

28. **Successful Phototherapy of Phagedenic Ulcers.**—Fontoynont reports nearly 400 cases of "Madagascar sore" treated at Tananarivoo during the last seven years. He is positive that these phagedenic ulcers are identical with the hospital gangrene of former centuries. He noted that the ulcers merely cleaned and exposed to the air healed better than those under dressings. Healing was much facilitated by painting the lesion with a 5 per cent. solution of eosin, and then exposing it to the sunlight all day, protecting it with a dressing at night. The chemical rays filtered through thick clouds seem to display the most curative power in this respect.

29. **Non-Specific Serums in Treatment of Tumors.**—Tuffier writes to emphasize the unmistakable effect on phagocytosis of any and all of the curative serums in vogue. Any one of them injected in turn into a cancer patient causes retrogression of the lesions to a certain extent and improvement in the clinical picture. The effect is slighter and more transient with each serum, until finally no influence is appreciable and the disease continues its inexorable course, possibly more rapidly than if the serum treatment had not been instituted. All these serums affect the number of leucocytes, inducing a super-leucocytosis which is at first pronounced and lasts for a time. It grows constantly less and less decided and more transient as the injections of the same or of any other serum are repeated.

30. **Physical Treatment of Hemorrhoids and Their Complications.**—Among the measures suggested is the cultivation of the habit of defecation before retiring as hemorrhoids are more apt to subside in bed. The congestion may be relieved by having the anal region raised a little above the plane of the bed. In acute exacerbations, this alone will sometimes cure in two or three nights. A cool or cold sitz bath is indicated in case of inflamed and bleeding hemorrhoids. When the congestion prevents defecation, it may be found useful to sit on a vessel full of very hot water. Raynaud even advises searing the hemorrhoids by sitting on a vessel containing a burning piece of amadou (punk) or other tinder. Active movements of the abdominal region should not be allowed to persons with hemorrhoids, as such movements increase the abdominal pressure and oppose the reflux of venous blood. The *only beneficial active movements of this region* are those involving the muscles of the floor of the perineum. The patient reclines on the bed, partly sitting up, with supports for his heels and shoulders. Another person pushes his knees apart and the patient is told to try and bring his knees together at the same time also to lift his hips above the bed. Electricity has proved very effectual for the cure of hemorrhoids. The high frequency applications are most effectual. Two or three sittings of three minutes each will relieve the pain in acute cases, and the hemorrhoids will subside. In chronic cases Zimmern gives sittings for alternate weeks. The high frequency applications are especially effectual in case of pruritus and sphincteralgia. He remarks in conclusion that the uniformly fine results attained in the latter condition have established the superiority of electricity over all other known medical and surgical measures for anal fissure with sphincteralgia.

### Beiträge z. klin. Chirurgie, von Bruns', Tübingen.

*Last indexed page 1072.*

32 (XLIV, No. 3.) Die Bruch-Operationen und deren Dauerresultate von 1896-1903 (herniotomies and remote results). Cluss (Wörner's clinic. Schw. Gmünd).
33 Operative Behandlung der Elephantiasis der Beine (of legs). G. Schmidt (Mikulicz' clinic, Breslau).
34 Traumatische Luxationen im Talo-crural-Gelenke. H. Ebel (Prague).
35 *Total-Exstirpation der Harnblase und die Versorgung der Ureteren (care of ureters after removal of bladder). T. Goldenberg.
36 Zur Diagnose und Therapie der Oesophagus-Divertikel. O. Bickel (Kümmell's service, Hamburg). One case.
37 *Spiralbrüche an den langen Röhrenknochen der unteren* Extremität (spiral fractures of long bones of leg). M. v. Brunn (von Bruns' clinic. Tübingen).
38 Saber-shaped Tibia in Hereditary Syphilis.—Zur Säbelscheidenform der Tibia bei S hered. tarda. E. Finckh.
39 Beitrag zum Wesen der congen.-syph. "Tibia en lame de sabre." H. Moses (Königsberg).
40 Isolated Bullet Wound of Pancreas Cured by Operation.—Isolierte Schussverletzung des Pankreas, durch Op. geheilt. A. Becker.
41 Treatment of Cicatricial Stricture of Trachea.—Behandlung der *Narbenstrikturen des Luftrohrs* und die Mangoldt'sche Laryngo-Tracheoplastik. von Hacker (Graz).

35. **Total Removal of Bladder.**—Goldenberg epitomizes 25 cases from the literature and describes another from Garré's clinic. The operation was undertaken on account of malignant disease in nearly every case. The various technics, *especially* for care of the ureters afterward, are reviewed and compared, with the early and the remote results.

### Deutsche Zeitschrift f. Chirurgie, Leipsic.

*Last indexed page 1074.*

42 (LXXV, Nos. 5-6.) *Remote Results to Date after Radium Treatment of *Carcinoma.—Ueber die bisherigen Dauer*resultate nach Radiumbehandlung von Carcinomen. A. Exner (Vienna).
43 *Outcome of Diffuse Peritonitis following Perforation of Ulcer in Stomach or Duodenum.—Heilungsresultate bei Peritonitis diffusa im Anschluss an acut in die Bauchhöhle perforiertes Magen-oder Duodenalulcus. P. Bonheim.
44 Exposure of Posterior Section of Urethra Without a Guiding Sound.—Freilegung des hinteren Abschnittes der Urethra von der *Prostata* ohne Leitsonde bei der Urethrotomia externa. F. Forgue (Montpellier).
45 Zur Urethra-Plastik. Reichel (Chemnitz).
46 Die Radikal-Operation der chronischen Kieferhöhleneiterung (maxillary sinusitis). Dreesmann.
47 Ascending Invagination.—Ueber aufsteigende Darmeinstülpung. N. Damianos.
48 Experimentelle Beiträge zur Anatomie und Pathologie des Gelenkknorpels (articular cartilage). R. Seggel. *(Continued.)*

49 •Heilung der [illegible] in (new esophagus suture). D. [illegible]
50 •Zur Frage d [illegible] (of skin). P. Klemm (Riga).

42. **Radium Treatment of Cancer.**—Exner describes a case of carcinoma in the cheek of a woman of 73 which had been declared inoperable by some surgeons while others thought it might be removed by sacrificing part of the upper and lower jaw. The growth was treated with radium daily for a month, then curetted, and the radium rays applied again both from inside and outside the cheek for twelve days. Healing and cure progressed rapidly and there have been no signs of recurrence during the more than twelve months since. The ready dosability of radium is one of its advantages over the *x*-rays. He found that rubber absorbs the radium rays more than aluminum, so that he now prefers the latter metal for the holder. He grinds 60 mg. radium bromid with about 1.5 c.c. xylol and adds 2 drops of dammar. This mixture is then placed in an aluminum box, about 1.5 cm. square. The radium dust settles to the bottom very evenly when stirred. After evaporation of the xylol, a few more drops of dammar are added and a hard rubber cover is fitted into the aluminum box, strengthening its thin walls. For cavities he uses a similar box made in the shape of a cone. The strength of the radium is equivalent to 12 Holzknecht unities in four hours.

43. **Diffuse Peritonitis After Perforation of Ulcer in Stomach.**—Bonheim presents the clinical histories of 16 cases of perforation of an ulcer in stomach or duodenum. An operation was undertaken in every instance and 9 of the patients recovered. The interval before operation in the cured cases was generally less than twenty-four hours, but in one it was four days, in another twenty-six hours, and in a third, forty-eight hours. One patient succumbed to ileus a few hours after the perforation. The 6 duodenum cases were all in males, and only one recovered. In the majority of the cases, the ulcer had not been previously diagnosed. Bonheim attributes this fine result of more than 50 per cent. recoveries to his practice of systematic intravenous infusion of large amounts of physiologic salt solution or Ringer's solution during and after the laparotomy to counteract the "internal hemorrhage" induced by the peritonitis with consequent heart weakness.

49. **New Suture for Esophagus.**—Navratil relates that experiments on dogs and on the cadaver to make and then to cure a fistulous opening between the esophagus and the trachea have proved successful. He ligated the arteries in the thyroid gland and then detached the gland to render it movable. The next day he drew the gland to the point where the sutures had been applied in the esophagus and trachea, and thus reinforced them by the body of the thyroid gland. The dog thus treated was completely cured in a few days, the wound in the esophagus having rapidly healed by primary intention. By this utilization of the thyroid even large defects in the esophagus might be stopped. He used a rubber button to keep the fistula open. The thyroid gland was fitted in between the sutures in the trachea and esophagus and was held in place with a tampon and a few sutures in the skin. Recovery was rapid and complete and the anatomic healing and conditions were found ideal when the animal was killed two months later.

50. **Sterility of the Skin.**—Klemm admits that no means are known to date by which we are able to render the field of operation absolutely sterile. All other factors that make for asepsis can be controlled, but implantation infection from the ordinary germs always found on the skin, is the vulnerable point in our present surgical technic.

### Münchener med. Wochenschrift, Munich.

51 (LII, No. 8, February 21.) Relations between Toxic Action of Cantharidin on Kidneys and Reaction of Urine.—Beziehungen zwischen der Giftwirkung des Kantharidins auf die Nieren und der Reaktion des Harns. A. Ellinger.
52 Zur bakteriologischen Diagnose. Gossner.
53 Raw or Boiled Milk?—Rohe oder gekochte Milch? H. Brüning (Leipsic).
54 Zur Behandlung des Ulcus cruris und seiner Ursachen. H. Vörner.
55 Epidemie der tropischen Malaria in Mostar (Bosnia). R. Fibich.
56 *Zur therapeutischen Verwendung des Sauerstoffs (oxygen). Cnopf.
57 Sodium phenylpropiolate in Laryngeal and Pulmonary Tuberculosis.—Inhalation von phenylpropiolsaurem Natron gegen Kehlkopf- und Lungentuberkulose. Bulling.
58 Gastric Catarrh and Administration of Hydrochloric Acid.—Zur Therapie des akuten und chronischen Magenkatarrhs und eine Form der Salzsäuredarreichung. F. Weltlaner.
59 Sepsis, verursacht durch Empyem der Nasennebenhöhlen (of nasal sinuses). Kretschmann.
60 Drillingsgeburt bei einem Uterus bicornis unicollis (triplets). A. Dreyfuss.
61 Torsion des Samenstranges (spermatic cord). H. Klinger.

56. **Oxygen in Therapeutics.**—Cnopf relates the details of a few cases in which inhalation of oxygen proved an actual life-saving measure. One patient was a child with laryngeal diphtheria and pneumonia. Tracheotomy was impossible on account of the suffocation at the slightest attempt to move the child. Inhalation of oxygen, however, quieted the symptoms to a remarkable extent and allowed tracheotomy to be undertaken and very easily carried through, with the ultimate recovery of the patient. In 2 other cases inhalation of oxygen had an unmistakably favorable effect on attacks of cardiac asthma in children. One of these children died suddenly soon after. It was found lying quietly and had not altered its position. Death must have been due to sudden arrest of the heart action. The thymus was found enlarged, with a small pus-filled cavity in the center.

### Therapeutische Monatshefte, Liebreich's, Berlin.

*Last indexed page 1075.*

62 (XVIII, No. 9.) Beitrag zur Ernährung und Behandlung der chronischen Nierenerkrankungen (kidney affections). Lenné (Neuenahr).
63 Apparatus for Applying Kerosene to Stagnant Water.—Ueber Vernichtung der Larven und Nymphen der Culiciden und über einen Apparat zur Petrolierung der Sümpfe. B. Galli-Valerio and J. R. de Jongh (Lausanne).
64 Unguentum Credé in der Augenheilkunde (in ophthalmology). W. Feilchenfeld.
65 Malz-Extrakt ist ein wertvolles Nährmittel (malt extract a food). A. Wolff.
66 (No. 10.) Serum Treatment of Anthrax.—Zur Milzbrandtherapie mit Versuchen über die immunisierende Wirkung des Serums. R. Gonser.
67 Serum Treatment of Puerperal Fever.—Behandlung des Wochenbettfiebers mit Antistreptokokkenserum. H. Pilcer and M. Eberson.
68 Treatment of Detachment of Retina.—Zur Therapie der Netzhautabhebung unter bes. Berücksichtigung der Skleralresektion zur Heilung derselben. P. Schultz.
69 Zur Heilung der Unterschenkelgeschwüre (leg ulcers). Engelbrecht.
70 Ueber die Behandlung von Deformitäten mit Hilfe elastischer Heftpflasterzugverbände (adhesive plaster traction bandages). J. L. Beyer (Dresden).
71 Physikalisch-chemische Grundlagen für die therapeutische Beurteilung der Mineral Wässer (waters). M. Roloff (Halle). (Commenced in No. 9.)
72 (No. 11.) Zur Behandlung des Keuchhustens (whooping cough). Stepp.
73 Antiseptische oder mechanische Händedesinfektion. R. Schaeffer.
74 *Zur Behandlung des Erysipels. F. Franke (Braunschweig).
75 Subcutaneous Removal of Tuberculous Lymph Glands in Neck.—Ueber die Entfernung der tub. Lymphdrüsen aus dem Halse auf subkutanem Wege. J. Miclescu.
76 Ueber die bisherigen Resultate mit der elektromagnetischen Behandlung. E. Lindemann.
77 Treatment of Pulmonary Affections by Way of the Intestines.—Behandlung der Tuberkulose (und andere Erkrankungen) der Lunge, vom Darm aus. Meyer.
78 Zur Ozena-Behandlung. M. Cramer (Coburg).
79 Das Glücksmannsche Verfahren der Oesophagoskopie. P. Danielsohn (Berlin).
80 Zur Kritik der Iodbäder (iodized baths). A. Rahn.

74. **Treatment of Erysipelas.**—Franke announces that he has been almost invariably successful, during the last thirteen years, in curing erysipelas with collodion and ichthyol. His aim is to compress the cocci in the tissues and to let their products accumulate without a chance to escape, hoping that this will in turn stifle the cocci. On the limbs, he applied strips of adhesive plaster. Each was about four-fifths of the circumference of the limb in length, and they were applied around the limb about 2 cm. apart, the gaps lapping, so that the constriction was not entirely circular. The erysipelas was always arrested by these constricting bands. It never progressed as far as the second strip. The same constriction is obtained on the head with collodion painted like a frame around the patch of erysipelas. Several layers are applied as it dries. The strip of collodion is about the width of a finger and encircles the patch, extending across the brow or near the hair, in front of or behind the ears and down to the neck. The patient is told not to laugh nor frown for fear of cracking the collodion, and any cracks are brushed over again at once. The patch itself is treated with ichthyol salve.

but the salve must not come in contact with the collodion to dissolve it. The skin must be cleared of grease before using the collodion. preferably with benzine. The erysipelas never encroached on the strip in his experience, and he commends this technic as a simple, convenient and reliable means to conquer this affection.

### Riforma Medica, Naples and Palermo.

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81 (XXI, Nos. 6-7.) *L'intervento chirurgico nelle cirrosi del *fegato con ascite.* O. Cignozzi.
82 Morbo di Parkinson *post-infettivo e famigliare.* P. Pennato.
83 **Effects of Extirpation of Pancreas.—Effetti della estirpazione* del pancreas. T. Silvestri.

81. **Operative Treatment of Cirrhosis of the Liver with Ascites.**—The Italians have been active in this line, and Cignozzi's monograph gives the complete history to date of surgical treatment of cirrhosis of the liver with ascites. The latest compilation shows 224 cases thus treated, with 46 per cent. of operative cures or improvements, 42 per cent. mortality, and 12 per cent. recurrences when the cirrhosis of the liver was of the atrophic type with ascites. Cirrhosis of the liver with hypertrophy shows 70 per cent. cured, 15 per cent. mortality and 10 per cent. recurrences. Two cases have been operated on by Tricomi at Palermo, and are here reported in detail. The results at first were unfavorable but later became extremely satisfactory. Alcoholism was excluded in each case. The first was one of nutmeg liver, of cardiac origin, with considerable and rebellious ascites. In the other. the cirrhosis of the liver was of the atrophic type, and the toxic-infectious nature of the morbid process and its intestinal origin were apparent from anamnesis. The first case was in a girl of 12 with mitral and tricuspid insufficiency and a history of acute articular rheumatism, at the age of 6. The heart lesions were well compensated, the liver was functioning moderately well, and the kidneys were apparently sound. The only serious symptom was the rebellious and annoying ascites. The passive hyperemia and congestion of the liver were obviously the principal cause of the ascites, and indicated operative treatment to supply new routes for the blood to relieve the passive engorgement of the liver. The omentum was drawn up between the muscles and the parietal peritoneum through a slanting incision near the liver. The patient had to be tapped two or three times in a month to prevent strain on the healing wound. After this, there was no further recurrence of the ascites or of the edema anywhere, and the patient remained in comparative good health for a year and a half, but then succumbed to sudden aggravation of her heart trouble without further symptoms from the circulation in the liver. The other patient was a woman of 45. and the syndrome indicated toxic-infectious cirrhosis of the liver with sudden appearance of ascites. The heart and kidneys were apparently sound. This patient also had to be tapped three times, but has been free from all indications of ascites during the two years since, while the general health has been much improved. There are seven varieties of cirrhotic affections of the liver with ascites, Cignozzi remarks. When the ascites is due to a thrombotic or phlebitic process or if the obstruction is due to compression from without, the assistance of the surgeon may effect a radical cure. In case of gin liver, the mortality of surgical intervention is high and the successes are few. But the condition is so discouraging that a trial is justified and. in exceptional cases. great relief may be obtained. Conditions are most favorable for success in the form with hypertrophy of the liver. In cirrhosis of cardiac origin the outlook is less promising, but very satisfactory results have been occasionally reported. In cirrhosis due to toxic-infectious processes, which includes the Budd and Banti types, great benefit is also liable to be derived. In cirrhosis of syphilitic origin there is seldom ascites. but cases have been published in which it did occur and was cured by deviation of the portal circulation by omentopexy. Zuccaro has reported a cure of a congenital syphilitic affection of this nature. When malarial cirrhosis of the liver is due primarily to the spleen. surgical intervention offers better prospects than when the liver is more seriously affected. The latter is generally the case when the cirrhosis of this organ is primary. In the splenic variety it is advisable to develop the collateral circulation of the splenic region, as well as of the liver, in performing omentopexy.

83. **Effects of Extirpation of Pancreas.**—Silvestri's experiments were made on young dogs. Complete removal of the pancreas always entailed transient glycosuria for twenty-four to thirty-six hours, followed by very slight glycosuria proportional to the nature of the food taken. All glycosuria vanished in forty-five to sixty days. The animals also displayed at first various nutritional and metabolic disturbances, with excessive hunger and thirst. These disturbances gradually subsided and the animals returned to apparently normal conditions. In one of the 7 animals the glycosuria was more pronounced, and the animal became sicker and sicker. with final paresis of the hind legs. The symptoms correspond in every respect with those observed in apancreatic diabetes, and the liver was found atrophied, in fatty degeneration, with vacuolization, when the animal was killed in about a month. In this case there had evidently been infection and intoxication which had prevented the development of the compensatory processes which alone render it possible for the organism to resume its functions and to recuperate. In conclusion, Silvestri protests against the way in which every glycosuria is called diabetes. There are many diabetics who thrive with large proportions of sugar, and others who are in bad condition with very little sugar. He does not think that constitutional diabetes is the effect of the reduced sugar destroying capacity. Its essential characteristic is a progressive aggravation of the initial changes. The voracious appetite and thirst are the reaction, the response of the organism to abnormal or excessive decomposition going on within it. Diabetes is, therefore, in its essence an autolysis. This conception has been adopted by Ferrannini for diabetes insipidus, which he explains as an anomaly in metabolism due to the excessive instability of the albuminoid molecule. Hence the relationship between these two forms of diabetes, and the frequent transformation of one into the other. The discrepancies in the results obtained by various investigators have probably been due to predisposing conditions, to the age of the animals experimented on, and to complications such as shock, infections, autointoxications, etc.

### Hospitalstidende, Copenhagen.

*Last indexed page 919.*

84 (XLVII, No. 35-36.) *Den kroniske Gastritis. K. Faber.
85 En Elevator-Pincet (ophthalmic forceps). A. Gad.
86 (No. 37.) *Jequirity in Treatment of Pannus trachomatosus.* —Om Behandling af hornhindeuklarheder med Jequiritol. S. Schou.
87 Sixth Northern Congress of Surgery, Göteborg, August, 1904. (Concluded.)
88 (No. 38.) *Om Behandling af Tubar-graviditet. J. Kaarsberg.
89 (No. 39.) *Causes of Tetania strumipriva.—Om Aarsagen til Tetania strumipriva. S. Christens.
90 (No. 40.) 26 appendektomier à froid (interval operations). H. Maag.
91 (Nos. 41-42.) **Elimination and Retention of Chlorids.*—Om Udskillelse og Retention af Klorider. V. Scheel.
92 (No. 43.) *Mastoidal-Operationer i Skopolamin-Morfin-Narkose.* V. Saxtorph Stein.
93 (Nos. 44-45.) *Frenkel's Re-educating Principle Applied Generally to Treatment of Disease.*—Frenkel's Ovelsesterapi og ovelsesprincipets almindelige Anvendelse ved Sygdomsbehandling. H. Munch-Petersen.

84. **Chronic Gastritis.**—Faber has been studying the anatomic findings in the stomachs from 40 cases of chronic gastritis and in scraps obtained through the stomach tube in 20 other cases. Aside from the cancer cases, he has encountered 10 cases of achylia and in all of these there were evidences of decided gastritis as also in 10 other cases of achylia in which the condition was determined from scraps brought up by the stomach tube. His experience has demonstrated the possibility of the existence of achylia without entire destruction of the glands, but that it is always accompanied by gastritis. In fact. the diminished secretory functioning is a manifestation of the gastritis. Hypersecretion may also occur with gastritis, but probably both are due to the same cause, usually an ulcer. Their action is antagonistic, on the whole, as the gastritis, when it obtains the upper hand, leads to achylia. The latter may persist long after the gastritis has subsided. His clinical experience with 44 cases of gastritis during the

last year and a half seems to indicate that the affection passes through three phases: 1, increased production of mucus with normal secretion; 2, production of mucus with hypochylia, and 3, achylia. In the first phase there is slight, superficial infiltration; in the second phase, the infiltration is more pronounced and deeper; in the third, it is extensive and diffuse with more or less atrophy. The gastritis frequently runs a latent course; sometimes nervous symptoms predominate, in other cases intestinal symptoms—diarrhea. The latent cases are those which have been erroneously designated as "nervous hypochylia or achylia." Nervous achylia is possible, but has not been demonstrated to date. In 6 or 7 of his series of 44 cases and in a number of others in his private practice the gastritis was latent and the nervous symptoms predominated, the manifestations of dyspepsia being so slight as to be overlooked. One symptom liable to mask the gastritis in such cases is the *vertigo e stomacho laeso* which may come on after meals without a trace of other dyspeptic disturbances. Other cases may present symptoms characteristic of neurasthenia, but in reality due to the chronic gastritis. True hysteric symptoms may also be superposed on a chronic gastritis, as he has had occasion to witness in a number of cases. Repeated examination of the functional capacity of the stomach will reveal the underlying gastritis in many of these puzzling cases. Secondary, hematogenic gastritis may develop after intestinal troubles or after acute infectious diseases. Primary gastritis is generally the result of imperfectly masticated or irritating food. He found defective teeth in 23 out of his 44 cases. In 7 of his patients, chronic abuse of alcohol was evidently a prominent factor, but he has frequently found the stomach apparently normal in persons extremely addicted to the use of liquor. The gastritis in other cases was due to abuse of laxatives, to pyorrhea alveolaris, to the use of chewing tobacco or to gastroptosis, but in a number of patients no cause could be determined. The discussion on Faber's article follows in No. 39 of the *Tidende.*

88. **Treatment of Tubal Pregnancy.**—Kaarsberg remarks that the best treatment for a progressing tubal pregnancy is extirpation. An early diagnosis is the main thing. He has had 70 cases since 1898, and 25 were operated on; 35 uncomplicated cases were treated expectantly or with curetting, and 6, in which the hemorrhage was profuse, were treated by laparotomy. The 28 cases of hematocele were treated by colpotomy in 17; expectantly in 9, and by laparotomy in 2. The pregnancy had progressed as far as to the eighth month in only one case. With a single exception, the patients were dismissed in good condition; in this case a tumor developed from an organized hematocele expectantly treated and this tumor induced fatal ileus a year later. A tubal pregnancy should be suspected when there is a violent and abnormally protracted menstruation without an intermission or with only a very brief one. When there is at the same time pain in the hypogastrium, the patient should be examined by a specialist and if a tumor be discovered in the adnexa the woman should go at once to a hospital where she can be under close supervision. Even the smallest tumor should compel this. Among his patients treated on this principle hemorrhage occurred in only 3 cases under hospital treatment. Expectant treatment or curetting of the uterus is allowable with a tubal mole, as the pregnancy ceases with the development of the mole. A hematocele, if not too large, is best treated by colpotomy and drainage. In his 17 cases he left the tube untouched.

89. **Experimental Thyroidectomy and Parathyroidectomy.**—Among the facts noted in Silvestri's experimental research on cats and goats, was the loss in weight of the animals when the thyroid and parathyroid glands were removed. One parathyroid gland but none of the thyroid tissue was removed from one cat, and this was the only animal that increased in weight instead of losing after the operation. Three cases of tetany were in goats that had been thyroidectomized for the production of organ preparations for treatment of exophthalmic goiter. The symptoms indicated that the tetany in these cases was unmistakably due to parathyroid insufficiency. Tetany developed invariably when all the parathyroid tissue had been removed, even when much thyroid tissue was left, but there was no tetany when some parathyroid tissue was left. (See Vassali's report of treatment of eclampsia with parathyroid tissue, in Miscellany column.)

91. **Retention of Chlorids in Disease.**—Scheel examined the organs of 20 cadavers in order to determine the proportion of salt retained in their various tissues. The organs were cut up into small pieces and the blood expressed. The tissues were then dried and rinsed to extract the chlorids. The subjects had succumbed to some valvular, liver or kidney affection, pneumonia, peritonitis or pernicious anemia or to some sudden traumatism. He found the proportion of sodium chlorid about the same in the sound and in the diseased organs. There was no evidence of what he calls "histo-retention," that is, retention of salt in the tissues. Experiments on animals were equally conclusive, showing that the salt retained does not combine with the tissues but is merely held in solution in the accumulated fluids. The retention of water from some disturbance in the kidney entails the secondary retention of salt. The fluid in the body holds back the necessary proportion of salt to keep up the osmotic balance. The greater the amount of fluid accumulated the larger the amount of salt retained. By reducing the intake of salt the blood takes up from the effusions a part of their salt with some of their water. This can be accomplished only when the diuresis is satisfactory; otherwise the most that can be obtained is the maintenance of the *statu quo.* The osmotic concentration and the permeability of the kidney are the variable factors which make the effects of retention or deprivation of salt differ in individual cases.

### Russky Vratch, St. Petersburg.

*Last indexed page 511.*

94 (III, No. 2.) Marked Chemical Changes in Organism of Rabbits Generated when Male Parent was Starving.—O chem. izmeneniyakh, etc. P. K. Ugrumoff.
95 *O sekretornikh depressivikh neurozakh. (secretory depressive neurosis). T. Kitaeff.
96 Prevention of Industrial Accidents and First Aid.—O preduprezhdenii nestchastikh slutchaev, etc. L. B. Bertenson.
97 (No. 3.) *Treatment of Vesicovaginal Fistula.—K. terapii puzyrnykh svischtchei u zhenshtchin. V. S. Gruzdeff.
98 *Diffuse Peritonitis Originating in Gynecologic Affections.—Razlitie peritonity, vyzvyvaemye bolyeznami zhenskikh polovykh organov. J. B. Zeldovitch.
99 Brandenburg Test for Albumin.—O technikye kolitchestvennago opredyeleniya byelka v motchye i drugikh zhidkostyakh po Brandbergy. A. F. Gegerstedt.
100 *Operative Treatment of Prolapse of Rectum.—Ob op. letchenii vypadenii pryamoi kishki. K. Weber. (Commenced in No. 2.)
101 *Malaria Contagion in Hospital.—Estestvennoe zarazhenie bolotnoi likhoradkoi v. lazaretye v Noyabrye. V. C. Ostaptchuk.
102 *Krioskopie moloka (of milk). I. S. Bomstein.
103 (No. 4.) Healing Powers of Nature.—O tzyelitelnoi silye prirodi. S. D. Mikhnoff.
104 Appeal for Dispensaries for Treatment of Drunkards with Hypnosis.—Ob organizatzii ambulatorii dlya alkoholikov. T. Rybakoff.
105 Toxins of Bacillus of Soft Chancre.—O toksinov myagko shancroznoi palotchki. S. V. Sovinsky.
106 Russian Folk-lore in Regard to Measures for Drunkenness.—Russkiya narodno-vratchebniya credstva ot pyanstva. v. Demitch.

95. **Supposed Neurotic Gastric Achylia.**—Kitaeff applies the term of secretory depressive neurosis to a case of periodically recurring pains in the stomach and achylia gastrica which suggested the diagnosis of tabes although no other symptoms of the latter were apparent. The patient was a young man who had had a severe fall four years before. After the fall, ptosis of both stomach and liver were noted but without subjective symptoms from this cause. Notwithstanding the continuance of the achylia, the digestion did not seem to suffer as the intestines apparently had assumed the lacking digestive functions.

97. **Treatment of Vesicovaginal Fistula.**—Gruzdeff has had occasion to operate in 30 cases of vesicovaginal or vesicouterine fistula in less than four years. The better results attained in the last 18 cases must be due to the perfected after-treatment as the operative technic, suturing the fistula, etc., was the same in all. The permanent catheter is introduced to the extreme lowest part of the bladder and left for nine days. The patient is carefully instructed to lie in such a way as to keep the wound up, never in a position in which the

urine would flow down to the wound. If the wound is in the median line the patient is kept on her back; if on the right side, she lies on the left. The suture threads are removed from the walls of the vagina on the tenth day and the patient is then allowed to change her position at will. On the eleventh day the catheter is discarded and on the twelfth, the patient is allowed to get up. By carefully observing these precautions he was successful in curing 94 per cent. of his patients in the last 18 cases, while there were 50 per cent. of failures in the first 12, although the operative technic was the same. In his first 12 cases, only 5 were cured, and 2 of these required a second and one a third operation. In the last series, 15 out of the 18 were cured and only 2 required a second and one a third operation.

98. Diffuse Peritonitis of Gynecologic Origin.—Zeldovitch reviews his experiences with 272 cases of diffuse peritonitis during the last eight years. About 23 per cent.—64—of the cases were secondary to some gynecologic affection, and he devotes special attention to this group. The proportion would be 36 per cent. if he included the tuberculous and puerperal cases in which the primary focus was in the genitalia. The only chance for the patient in these gynecologic cases of general peritonitis, is from the assistance of the surgeon, and the prospects are more encouraging in this class than with peritonitis from other sources. He operated on 117 of the total 272 patients, in 9 tuberculous, 11 typhoid, 19 appendicitis, 38 mixed, and 40 gynecologic cases. In 31 of the latter, the records show that 9 recovered and 22 succumbed. This is a proportion of 29 per cent. of recoveries. The operation was not performed until after 4.6 days from the beginning of symptoms on an average, and some who recovered were not operated on until the fifth, sixth and seventh day. The deaths were in cases in which an operation was not performed until the third to the sixth day in 7, and from the seventh to the fourteenth day in the others. His experience has been that patients with general peritonitis of gynecologic origin, not operated on, lived on an average 10.5 days, while those with general peritonitis of other origin succumbed in 3.7 days. The former class of patients are not debilitated by such serious primary affections as those in the latter class. He protests against the prevailing pessimism in regard to diffuse peritonitis if it can be proved that it originates in some gynecologic affection.

100. Treatment of Prolapse of Rectum.—Weber reports 3 cases treated by Ott's technic for restoration of the floor of the pelvis with excision of the prolapsed portion. This portion is usually more or less degenerated and restitution *ad integrum* is generally impossible. The technic is described in detail and compared with other technics.

101. Malaria from Hibernating Mosquitoes.—A soldier entered a hospital in the Caucasus in August on account of a lingering leg ulcer. While still in the hospital in November he acquired *malaria*, and the parasites were found in his blood. The region has the reputation of being free from malaria, but a few specimens of the anopheles claviger were discovered in the room which he had been occupying.

102. Cryoscopy of Milk.—The French have been proclaiming for some time that it is possible to detect by the variation of the freezing point when milk has been watered. Bomstein confirms their assertions and states that even 5 per cent. water can be infallibly revealed by this means. The freezing-point of pure milk is about minus .55 to .57 C. (just below 31 F.)

## *Books Received*

Acknowledgment of all books received will be made in this column and this will be deemed by us a full equivalent to those sending them. A selection from these volumes will be made for review, as dictated by their merits, or in the interests of our readers.

PROGRESSIVE MEDICINE. A Quarterly Digest of Advances, Discoveries and Improvements in the Medical and Surgical Sciences. Edited by Hobart Amory Hare, M.D., Professor of Therapeutics and Materia Medica in the Jefferson Medical College of Philadelphia. Assisted by H. R. M. Landis, M.D., Visiting Physician to Tuberculosis Department of Philadelphia Hospital. Vol. I, March, 1905. Surgery of the Head, Neck and Thorax—Infectious Diseases, Including Acute Rheumatism, Croupous Pneumonia and Influenza—The Diseases of Children—Laryngology and Rhinology—Otology. Paper. Pp. 298. Price, $6.00 per annum. Philadelphia and New York: Lea Bros. & Co. 1905.

CONSERVATIVE GYNECOLOGY AND ELECTRO-THERAPEUTICS. A Practical Treatise on the Diseases of Women and Their Treatment by Electricity. By G. Betton Massey, M.D., Attending Surgeon to the American Oncologic Hospital, Philadelphia. Fourth Edition, Revised, Rewritten and Greatly Enlarged. Illustrated with Twelve Original, Full-Page Chromo-lithographic Plates; Twelve Full-Page Half-tone Plates of Photographs Taken from Nature, and 157 Half-tone and Photo-Engravings in the Text. Pp. xvi-468. Cloth. Price, $4.00 net. Philadelphia: F. A. Davis Company.

MANUAL OF PSYCHIATRY. By J. Rogues de Fursac, M.D., Formerly Chief of Clinic of the Medical Faculty of Paris. Authorized Translation from the French by A. J. Rosanoff, M.D., Junior Assistant Physician, L. I. State Hospital, Kings Park, N. Y. Edited by Joseph Collins, M.D., Professor of Diseases of the Mind and Nervous System in the New York Postgraduate Medical School. First Edition. Cloth. Pp. 352. Price, $2.50. New York: John Wiley & Sons. 1905

JAHRESBERICHT über die Fortschritte in der Lehre von den Pathogenen Mikroorganismen umfassend bacterien, Pilze und Protozoën. Unter Mitwirkung von Fachgenossen bearbeitet und herausgegeben von Dr. med. P. von Baumgarten, Professor of Pathology, University of Tubingen, und Dr. med. F. Tangl, Professor of Physiologic Chemistry, University of Budapest. Achtzehnter Jahrgang. 1902. Zweite Abtheilung. Paper. Leipzig: Verlag von S. Hirzel. 1905.

*WHARTON AND STILLES MEDICAL JURISPRUDENCE. Vol. II.* Poisons. By Robert Amory, A.M., M.D., President of the Sixth National Convention of 1880 for Revising the U. S. Pharmacopeia, and Robert L. Emerson, A.B., M.D., Instructor in Physiological Chemistry, Medical School of Harvard University. Fifth Edition. Cloth. Pp. 858. Price, $18.00 net in three volumes. Rochester, N. Y.: *Lawyers' Co-operative Pub. Co.* 1905.

A TEXT-BOOK OF THE PRACTICE OF MEDICINE. For Students and Practitioners. By Hobart Amory Hare, M.D., B.Sc., Professor of Therapeutics and Materia Medica in the Jefferson Medical College of Philadelphia. Price, with 129 Engravings and 10 Full-page Plates in Colors, $5.00 net. Cloth. Pp. 1,120. Philadelphia and New York: Lea Brothers & Co. 1905.

RECHERCHES CLINIQUES ET THERAPEUTIQUES SUR L'EPILEPSIE, L'HYSTERIE et L'Idiotie Compte-Rendu du Service des Enfants Idiots, Epileptiques et Arrieres de Ricetre Pendant L'Annee 1903. Par Bourneville. Ave la collaboration de J. Boyer, L. Izou. Lemaire, Reine Maugert, Julien Noir, Paul-Boncour. Vol. xxiv. Paper. Paris: Felix Alcan. 1904.

A MANUAL OF MECHANICAL DENTISTRY AND METALLURGY. By George W. Warren, A.M., D.D.S., Professor of Clinical Dentistry, Pennsylvania College of Dental Surgery. Second Edition, Revised and in Parts Rewritten, with 179 Illustrations. Cloth. Pp. 262. Price, $2.00 net. Philadelphia: P. Blakiston's Son & Co. 1905.

UNCOOKED FOODS AND HOW TO USE THEM. A Treatise on How to Get the Highest Form of Animal Energy from Food, with Recipes for Preparation, Healthful Combinations and Menus. By Mr. and Mrs. Eugene Christian. Cloth. Pp. 246. Price, $1.00. New York: The Health-Culture Co. 1904.

FIFTH ANNUAL REPORT OF THE WORK OF THE CANCER LABORATORY OF THE NEW YORK STATE DEPARTMENT OF HEALTH Conducted at the Gratwick Research Laboratory, University of Buffalo, for the Year 1903-4. Paper. Pp. 164. Albany: J. B. Lyon Co. 1904.

THE PHYSICAL CULTURE LIFE. A Guide for All Who Seek the Simple Laws of Abounding Health. By H. Irving Hancock, Author of Japanese Physical Training. Illustrated. Cloth. Pp. 229. Price, $1.25. New York and London: G. P. Putnam's Sons. 1905.

LEHRBUCH DER KINDERKRANKHEITEN für Arzte und Studirende von Dr. Adolf Baginsky, Professor der Kinderheilkunde an der Universität Berlin. Achte völlig neu durchgearbeitete und verbesserte Auflage. Paper. Leipzig: Verlag von S. Hirzel. 1905.

EIGHTEENTH BIENNIAL REPORT OF THE STATE BOARD OF HEALTH OF CALIFORNIA for the Fiscal Years from July 1, 1902, to June 30, 1904. Paper. Pp. 35. Sacramento: W. W. Shannon. 1905.

THE INTERNATIONAL MEDICAL ANNUAL. A Year Book of Treatment and Practitioner's Index. 1905. Twenty-third Year. Cloth. Pp. 643. Price, $3.00 net. New York: E. B. Treat & Co. 1905.

TWENTY-NINTH ANNUAL REPORT NEW YORK STATE REFORMATORY AT ELMIRA for the Fiscal Year Ending Sept. 30, 1904. *Paper. Pp. 48. Reformatory:* The Summary Press. 1905.

FIFTY-SIXTH ANNUAL REPORT OF THE CENTRAL INDIANA HOSPITAL FOR THE INSANE for the Fiscal Year Ending Oct. 31, 1904. Paper. Pp. 86. Indianapolis: Wm. B. Burford. 1905.

ELEVENTH ANNUAL REPORT OF THE MANAGERS AND OFFICERS OF THE CRAIG COLONY FOR EPILEPTICS at Sonyea, N. Y., to the State Board of Charities, Oct. 1, 1904. *Paper. Pp. 88.*

NINETEENTH REPORT OF THE STATE BOARD OF HEALTH AND VITAL STATISTICS OF MINNESOTA, 1901-1902. Cloth. Pp. 417-xx. St. Paul: Pioneer Press Co. 1902.

TWENTY-FIFTH ANNUAL REPORT OF THE HEALTH OFFICER OF THE DISTRICT OF COLUMBIA, 1903-4. Cloth. Pp. 216. Washington: Government Printing Office. 1904.

THE WORK OF THE INTERSTATE COMMERCE COMMISSION. By H. T. Newcomb, of the Bar of the District of Columbia. Paper. Pp. 100. Washington: Gibson Bros., 1905.

THE LIFE OF FLORENCE NIGHTINGALE. By Sarah A. Tooley. with 22 *Ilustrations.* Cloth. Pp. 344. Price, $1.75. New York: The Macmillan Co. 1905.

THE THIRD REPORT OF THE CAROLINE BREWER CROFT CANCER COMMISSION of the Harvard Medical School. Paper. Pp. 124. Boston. 1905.

REPORT OF ILLINOIS GOOD ROADS COMMISSION to the 44th General Assembly. *Paper. Pp. 56.* Springfield: Ill. State Jour. Co. 1905.

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## Original Articles

## LABORATORY DIAGNOSIS OF VARIOLA.*

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The diagnosis of variola often presents difficulties, even to an expert. Patients, therefore, often have to be kept under observation for several days at considerable inconvenience, expense and danger to a municipality before they are finally released or sent to a smallpox hospital. This keeping of suspected patients under observation disturbs the peace of mind, not only of the patient, but of the physician on whom rests the responsibility of possibly sending a man who is not infected with variola to a smallpox hospital, or, on the contrary, of turning loose on the community a source of infection in an atypical case of smallpox. Most frequently these "observation" cases are those in which the evidence is just not quite enough to make the physician positive, and the patient has to furnish further evidence by the development of his disease.

It is desired in this article to suggest an aid to diagnosis that will furnish this added evidence at once and reduce the time of observation in these doubtful cases to a few hours instead of causing a delay of from one to several days. It will divide the responsibility of diagnosis between two men, just as a diagnosis of a malignant new growth is shared between the surgeon who operates and the pathologist who examines the tissue. The method advised is simply an application of laboratory diagnosis to variola. Why such a method has not been put into general use before, may be due to the facts that sufficient stress has not been laid on the specificity of the smallpox lesion, and that no good rapid method of diagnosis was at hand for examining such small portions of tissue, as by their removal, would cause no inconvenience to the patient.

I was enabled to obtain material for this study through the permission of Dr. John H. Simon, Health Commissioner of St. Louis, and by the kind aid of Dr. H. J. Scherck, chief dispensary physician, and of Dr. M. J. Dwyer, superintendent of the Quarantine Hospital, to all of whom I wish to express my sincere thanks. Snipping of the skin, in all instances, was done only with the patient's permission, and in no case was there any subsequent complaint or untoward effects following such removal. The snipping of a piece of skin is less painful to the patient than pricking the skin, as is done in ordinary blood examinations. The bits of skin taken vary in size from 2 mm. to 5 mm. in diameter, i. e., a single papule, vesicle or pustule is taken, as the case may be.

For this study I was enabled to obtain skin in all stages of the disease. My earliest specimen was from a negro who developed variola while in the wards of the Missouri Pacific Hospital; the skin being taken *a few hours after the appearance of the eruption.* Most frequently the skin was taken the first, second or third day of the eruption. Skin was also taken at autopsy in the later stages of the disease.

### TECHNIC.

While there are admirable rapid methods of diagnosis for ordinary surgical material, for example, Wright's[1] method for frozen sections, they present certain difficulties in this work. This is due to the small piece of tissue and to the trouble of mounting it. Methods more or less rapid also exist for celloidin and paraffin work, for example, that of Stein,[2] which, while they offer fair results, demand extensive detail and entail the chance of losing the piece of skin during the frequent changes of fluid to which it must be subjected.

Quite recently, however, a rapid method of paraffin imbedding has been described by Henke and Zeller,[3] which makes this work with very small pieces of tissue practical. The method is not only rapid, but is simple in the extreme, and gives results that can not be obtained with unimbedded tissue, as even the smallest snippings can be cut exactly where desired. A greater variety of stains can be used after this fixation than can be used after formol fixation. For instance, the eosin-methylene blue stain advised by Mallory,[4] which does not give good results after formol, works perfectly after acetone fixation. The method is as follows: The lesion selected (papule, vesicle or pustule) is spread out on a piece of filter paper to avoid curling and dropped immediately into pure acetone. The amount of acetone should be about twenty-five times the bulk of tissue. The tissue is left in the acetone from forty-five minutes to an hour and a half, and is then transferred directly into paraffin at 56° C. *The paraffin at this temperature removes the acetone* so that these two steps are all that are necessary. From one to two hours is sufficient time for the tissue to remain in the paraffin. The subsequent treatment is the same as with any paraffin material. The tissue is blocked and cut and the sections blotted to the slide. Xylol, absolute alcohol, thin celloidin, 95 per cent. alcohol and water are successively applied by the dropping bottle, and the sections are ready for the stain. It is important to use care in orientation of the sections. The lesions are mounted on edge. I find it most satisfactory to cut the whole piece serially, and then to select sections from both the center and edge of the lesion.

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* From the Pathological Laboratory of the St. Louis University.

[1] Mallory and Wright: Pathological Technic, p. 263.

[2] Stein: Ueber Schnellhärtung u. Schnelleinbettung, Deutsche med. Wochft., vol. xxix, No. 44.

[3] Henke and Zeller: Aceton-Paraffin Schnelleinbettung, Cent. für Pathologie, vol. xvi, No. 1.

[4] Mallory: Scarlet Fever; Protozoon-like Bodies Found in Four Cases, Jour. of Med. Research, vol. x, No. 4.

Staining may be done by any of the usual methods. Simple staining with a fairly dilute methylene blue often suffices for diagnosis. Hematoxylin and eosin are perhaps the most satisfactory stains for routine procedure. In doubtful cases, or when especial study of the section is desired the eosin-methylene blue stain previously referred to is undoubtedly the best. It offers, however, the disadvantage of requiring more time than the other methods.

This process, then, involves but four steps, and the result is a thin uniform paraffin section showing the exact part of the lesion desired and taking perfectly a variety of differential stains. A fair estimate of the time required for such sections is three hours from the time the skin is taken from the patient.

### SPECIFICITY OF THE SKIN LESION.

Laboratory diagnosis of variola may be discussed under two heads: First, the specific histology of the lesion, which should present less difficulty to the pathologist than do many sections of carcinoma and sarcoma which he is called daily to decide on. Second, the presence in the early stages of certain specific bodies best described by Councilman, Brinckerhoff, and McGrath,[5] and later by Howard and Perkins,[6] and regarded by these observers as parasites and the cause of the disease.

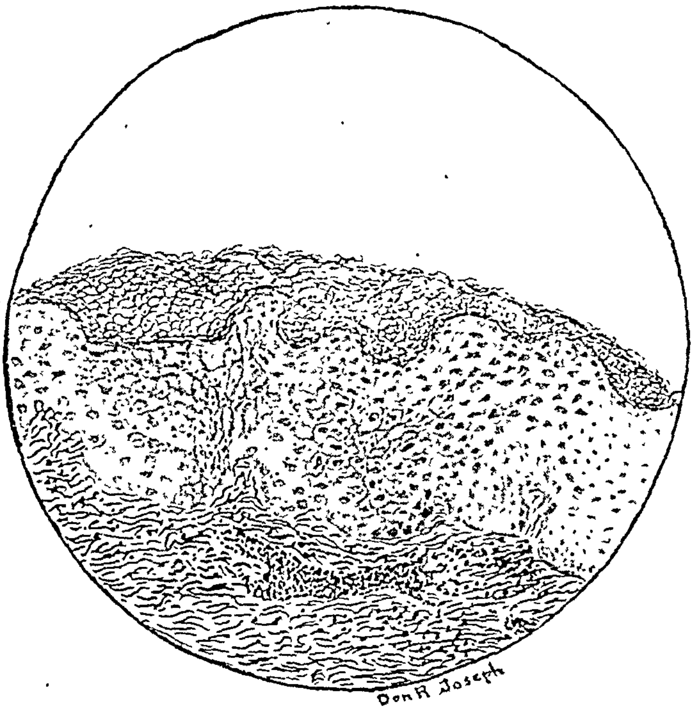

Fig. 1.—Edge of a young vesicle. Section shows thickening of the epithelium due to swelling of the cells in the mesial zone, which is represented by lighter staining. The earliest stage of vesicle formation is seen at this point. Numerous cytoplasmic bodies can be found in and about the light staining area. The blood vessel in the corium shows proliferation of endothelium. Figures 1 and 2 were sketched from Zeiss AA. Oc. 3.; Figure 3 *from* Zeiss 1/12, oil immersion, Oc. 3.

It is unnecessary to go into detail regarding the specific histology of the skin lesion in variola. The lesion has recently been described at length by Councilman, Brinckerhoff, and McGrath,[5] and by Ferguson[7] and the specificity always insisted on. Ewing[8] says: "It is hardly to be expected that histologic changes exactly similar to variola should occur in any other lesion. There is apparently no other condition in which rapidly necrosing squamous epithelial cells are bathed in fluids under pressure as in variola."

Briefly, the main histologic features may be summed up as follows:

1. The earliest change in the skin is a dilatation of the lymph spaces of the corium just below the deepest cells of the malpighian layer. Following this bathing of the epithelial cells with lymph, there is a change in the cells; the nuclei become swollen and there is a reticular degeneration of cytoplasm.

2. An increased depth of the layer of epithelium affected is noted, and a pale staining area in the mesial zone of prickle cells is seen. This represents the earliest stage of vesicle formation. The cells of the malpighian layer show degenerative changes.

3. The exudate which causes this swelling of cells and increased depth of epithelium in the early stages is always fluid. There are no polymorphonuclear leucocytes seen coming to the lesion at this stage, as in the beginning of practically all other forms of skin inflammation. There may be some proliferation of the endothelial cells from the vessels of the corium.

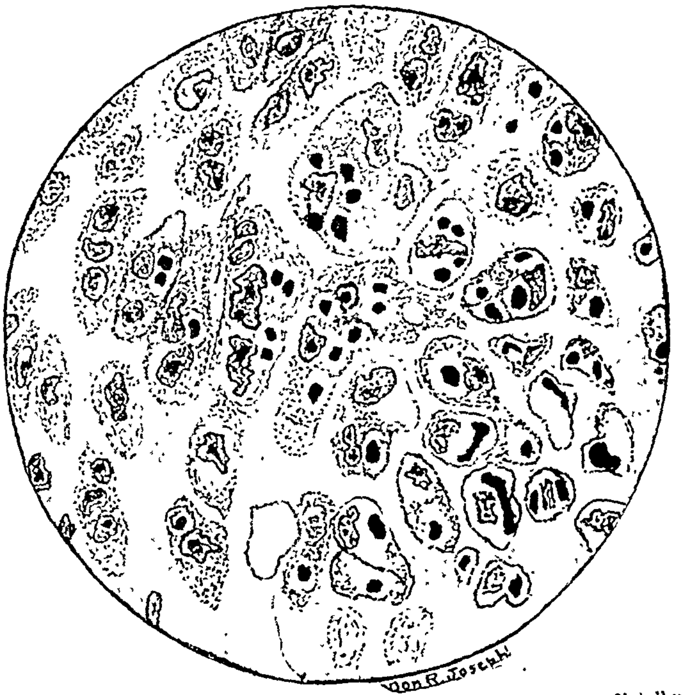

Fig. 2.—High-power drawing showing the number and distribution of the cytoplasmic bodies at the edge of an early vesicle.

4. The vesicle is a development of the process described in 2. As the exudate increases the cells rupture. The cell borders form a network by coalescence. Still further exudation causes a rupture of the coalescent cell borders. The result is a cavity filled with fluid, in which are irregular cell strings, bounded above by the horny layer, and below by the corium or by an intact layer of epithelium.

5. The cavity gradually increases in size and is invaded by cells; polymorphonuclear leucocytes and lymphocytes. The cells in the cavity quickly break down. The lesion is now usually termed a pustule.

### THE SMALLPOX BODIES.

Leaving aside the nature and the more complicated forms of the structures, certain bodies may always be seen in skin lesions of variola, properly prepared, in the early stage of the disease:

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[5] Councilman, Brinckerhoff and McGrath: The Pathologic Anatomy and Histology of Variola, Jour. of Med. Research, vol. xi, No. 1.

[6] Howard and Perkins: A Study of the Etiology of Variola, Jour. of Med. Research, vol. xii, No. 3.

[7] Ferguson: The Histology of the Skin in Variola, Jour. of Pathology and Bacteriology, vol. x, No. 1.

[8] Ewing: Comparative Histology of Vaccinia and Variola, Jour. of Med. Research, vol. xii, No. 4.

1. *Cytoplasmic Bodies.*—These may be small structureless bodies, one to four microns in diameter; homogeneous ameba-like bodies lying in vacuoles; larger reticular bodies eight to ten microns in diameter; small dot-like bodies about one micron in diameter. In general, these bodies are best seen in the edge of a young vesicle. They occur in the cytoplasm of normal cells, degenerated cells and between the cells. They may also be seen in the corium before the formation of the vesicle. The presence of these bodies in the skin before there is any definite anatomic lesion is an important point in diagnosis.

2. *Intranuclear Bodies.*—I have not been able to find intranuclear bodies in the earliest cases. It is suggested by Councilman, Brinckerhoff, and McGrath[5] that these bodies represent a further stage in the development of the cytoplasmic bodies. As the presence of these bodies is not necessary to a diagnosis they will not be discussed here. They are best found from the time of disappearance of the cytoplasmic forms until repair has begun. For complete descriptions of these bodies the reader is referred to the authors previously mentioned and to Calkins[9] and Tyzzer.[10]

All cases are not typical and variations of type must be considered in the laboratory just as in the clinic. Departure from the typical may consist in the incomplete development of the lesion (abortive type), or in the diffuse hemorrhage that takes place in some cases before the appearance of any lesion. I have not had the opportunity to study typical hemorrhagic cases, but Councilman[5] states that in cases where purpura preceded the eruption "there was no doubt about the character of the process. The skin showed the earliest stage of true lesions. In all cases there were parasitic inclusions." While laboratory diagnosis of variola may be sometimes quite as difficult as is the microscopic determination of the malignancy of certain tumors, I believe, however, that with the microscope fewer mistakes are liable to be made by a microscopist of reasonable skill in smallpox diagnosis than in tumor diagnosis.

### CONCLUSION.

In conclusion, then, by means of acetone fixation, paraffin imbedding and hematoxylin-eosin staining, we can make a laboratory diagnosis of variola from a small skin snipping in an average time of three hours, based on a specific histologic lesion and on the presence of certain bodies in or adjacent to the lesion.

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# LARGE CARCINOMATOUS TUMOR OF THE LIVER.

## REMOVAL SEVENTEEN MONTHS AFTER NEPHRECTOMY FOR CARCINOMA OF THE LEFT KIDNEY. TEMPORARY RECOVERY.

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Although Brunn in 1870 removed a small hepatic tumor, the surgery of the liver does not seem to have attracted much attention until Lin, in 1886, successfully performed a partial resection. Since that date, however, more than 100 resections of portions of the liver have been reported. Among the exhaustive treatises on the subject those of Terrier and Auvray,[1] in France, and of Langenbuch,[2] in Germany, deserve especial mention. In America the name of W. W. Keen[3] of Philadelphia is intimately associated with the development of the technic of liver surgery. He has not only reported three cases of resection, in all of which recovered took place, but has also published an exhaustive review of the previous literature. Nor should it be forgotten that a Baltimore surgeon, Dr. Louis McLane

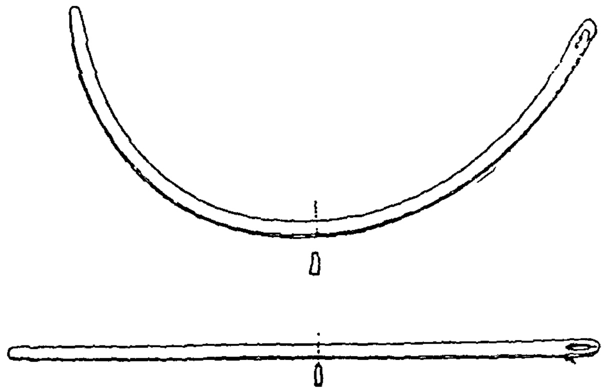

Fig. 1.—Kousnietzoff's blunt needle. This large curved needle has a rounded point. Its shape on cross section is shown in the small sketch below. The straight needle is preferable for mattress sutures.

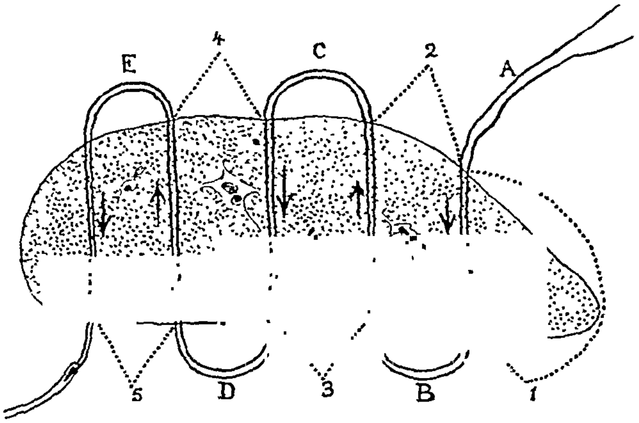

Fig. 2.—Kousnietzoff's liver suture. The needle is threaded double and is carried in and out through the liver, producing a continuous mattress suture, which is cut up into single mattress sutures before tying.

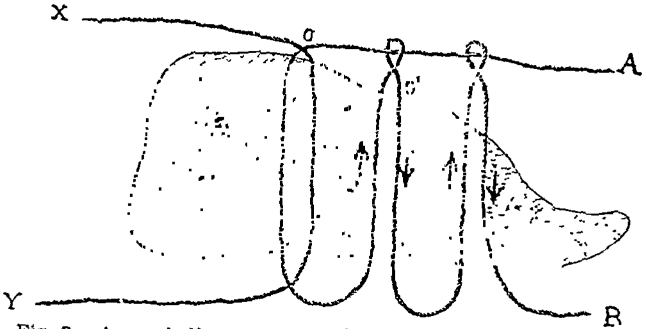

Fig. 3.—Auvray's liver suture. This is the so-called chain suture, and after insertion is drawn taut.

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9. Calkins: The Life of Cytoryctes Variolæ, Guarnieri, Jour. of Med. Research, vol. xi, No. 1.

10. Tyzzer: Etiology and Pathology of Vaccinia, Jour. of Med. Research, vol. xi, No. 1.

1. Terrier and Auvray: Les Tumeurs du Foie, Rev. de Chir., 1898, vol. xviii, p. 403.

2. Langenbuch: Chirurgie der Leber und Gallenblase, Deutsche Chirurgie, Stuttgart, 1897.

3. Keen, W. W.: Resection of the Liver, Boston Med. and Surg. Jour., vol. cxxvi, p. 405, 1892; Pennsylvania Med. Jour., 1897; report of a case of resection of the liver for removal of a neoplasm, with a table of 76 cases on resection of the liver for hepatic tumors. Ann of Surg., September, 1899.

Tiffany,[4] was one of the first Americans successfully to remove a tumor of the liver.

*The Nature of Hepatic Tumors.*—Few operators have reported more than one case, and as each has had his own idea of the proper nomenclature of tumors, there is naturally much diversity of description. With the more thorough study of the subject, the varieties will undoubtedly be materially diminished in number. The list of those given is as follows:

Constricted and prolapsed lobe of the liver.
Fibroma.
Syphiloma or gumma.
Tubercle (occasionally single, may reach 3 or 4 cm. in diameter).
Adenoma.
Lymphadenoma.
Cysts: (a) echinococcus cysts; (b) biliary cysts (large and lined by one layer of cylindrical epithelium).
Angioma: (a) congenital; (b) acquired.
Lymphangioma cavernosum.
Cancer: (a) primary; (b) secondary.
Sarcoma: (a) primary; (b) secondary.
Endothelioma.
Aneurism of the hepatic arteries.

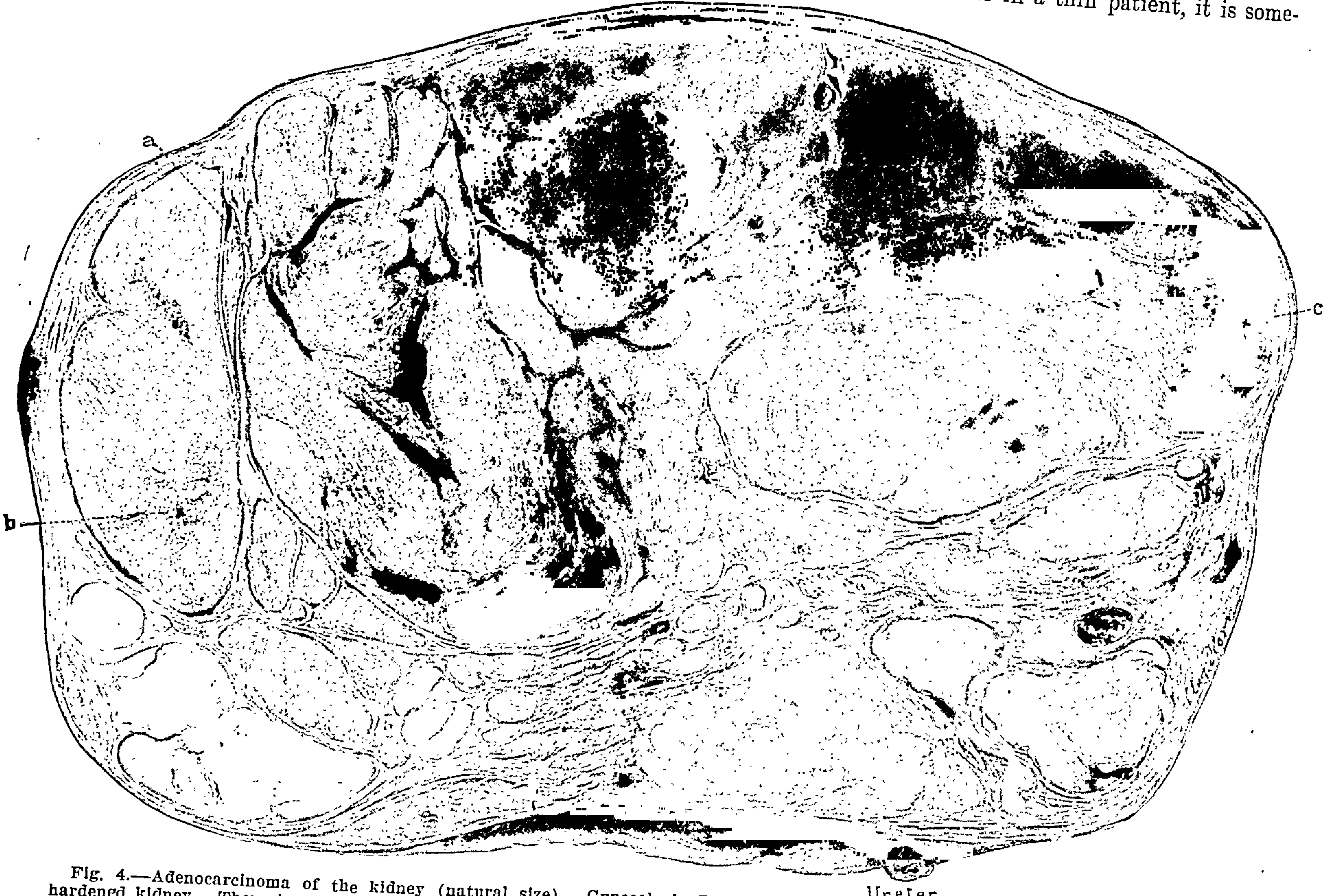

Fig. 4.—Adenocarcinoma of the kidney (natural size). Gynecologic Pathologic No. 6364. This is a longitudinal section of the hardened kidney. There is a well-defined outer capsule which consists almost entirely of connective tissue. Passing off into the growth from the capsule are trabeculæ (*a*) which divide it into large and small alveoli. The growth presents a decidedly mottled appearance. At *b* it is finely granular. In numerous places it has undergone necrosis and disintegration as seen at *c*. The ureter is little, if at all, enlarged.

Echinococcus cysts, cancers and syphilomata are the most common of hepatic tumors. The growths vary greatly in size, some being not more than 2 or 3 cm. in diameter, while others, as in Pfannenstiel's case, may be so large as to render the abdomen larger in its dimensions than that of a pregnant woman at term.

INCIDENCE AND SYMPTOMS OF HEPATIC TUMORS.

Tumors of this character may be found in the young or in the old. They are, however, most common between the twentieth and fiftieth years. As has been pointed out by Keen, hepatic growths are much commoner in women than in men. In 68 cases analyzed by him, 13 of the patients were males and 55 females. He thinks that the relative immunity in men is probably due to the looseness of the clothing worn. In the additional cases which I have collected, 4 of the patients were men and 12 were women.

The symptoms of hepatic tumors are in no way characteristic. Practically, they are those belonging to any growth developing in the right upper abdominal quadrant. When the growth is primary and situated near the lower edge of the liver in a thin patient, it is sometimes palpable, but if the individual be stout the growth can readily be overlooked.

DIAGNOSIS.

Hepatic tumors are rarely correctly diagnosed until the abdomen is opened. In the cases reported the growths have been mistaken for tumors of the kidney, ovarian cysts, uterine myomata, mesenteric and pancreatic tumors, tumors of the colon, aneurisms of the aorta, growths in the gall bladder and stomach, and abscess of the liver. This is equivalent to saying that in a series of cases they have at one time or another been confused with almost every tumor that may be present in the abdomen. Such a tumor is usually first noticed on the right side, in the region of the lower edge of the liver. In the rare instances in which the movement of the diaphragm is transmitted to the tumor, we possess a diagnostic sign of much value. Occasionally, percussion or palpation, or both, will enable us to detect a definite connection between the tumor and the liver.

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[4] Tiffany, Louis McLane: Maryland Med. Jour., 1890, vol. xxxiii, p. 531.

Even after the abdomen has been opened and the tumor exposed, one is often still in doubt as to the exact nature of the growth. If the patient has given a definite history of syphilis, it may be assumed, with a relative degree of certainty, that a gumma is present; on the other hand, if a carcinoma of the stomach be present, the surgeon will be justified in concluding that the hepatic growth is a secondary cancerous nodule.

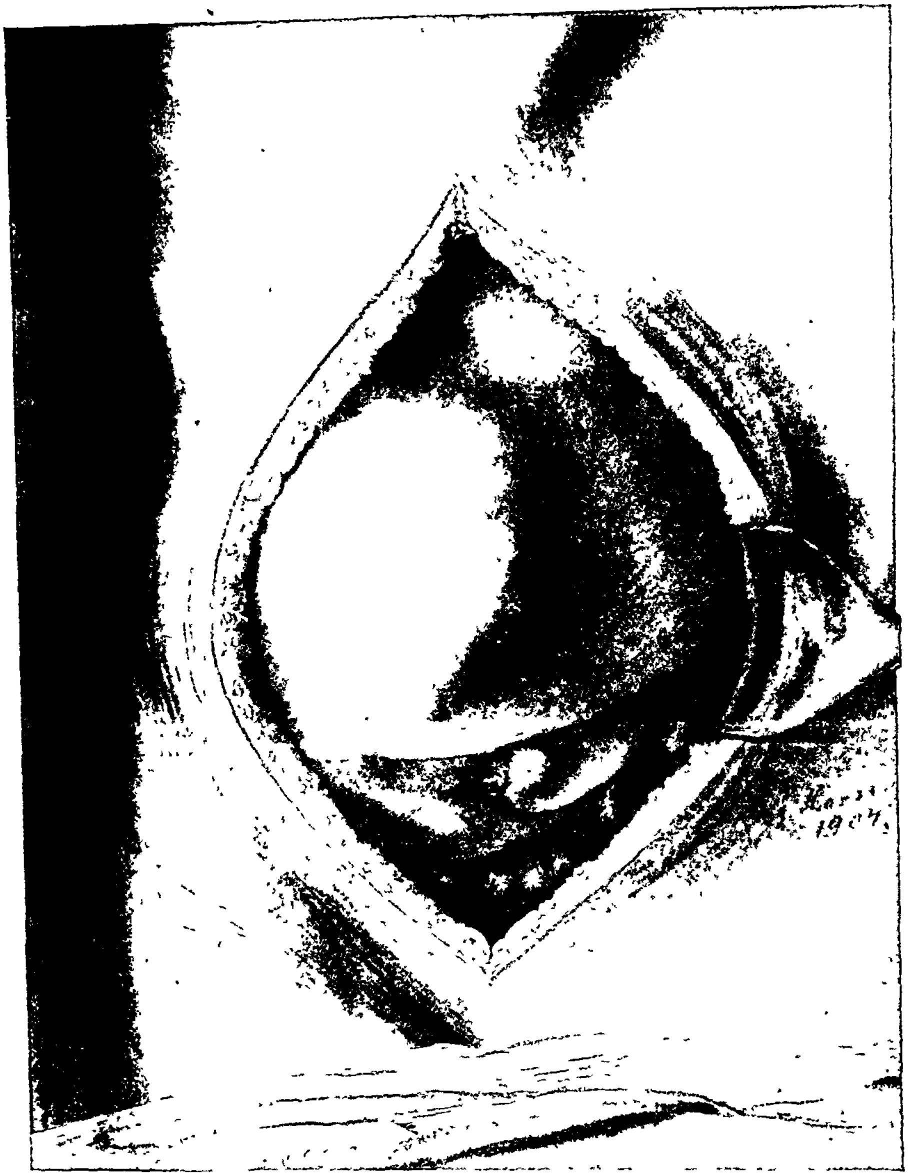

Fig. 5.—Secondary carcinoma of the liver (one half natural size). The liver is markedly displaced downward. Occupying the greater part of the right upper quadrant of the abdomen is a hepatic growth. Downward this almost reaches the anterior superior spine; medianward it passes nearly to the umbilicus and laterally makes the abdominal wall prominent. The growth seems tense, is slightly lobulated and, although sharply outlined, gradually blends with the liver substance. The edge of the liver forms a prominent ridge along the lower margin of the growth and the gall bladder is seen lying against the under and inner surface of the tumor. It is readily seen that when the cystic duct was severed the greater part of this liver could be rolled out of the abdomen. For a cross section of the hepatic growth see Figure 7.

As a matter of fact, it is rarely possible to be able to make more than a tentative diagnosis, until the growth has been removed. In our case the left kidney had been removed nearly eighteen months previously for carcinoma. The symptoms accompanying the hepatic tumor were quite applicable to a case of liver abscess, and after the abdomen had been opened the general picture suggested an inflammatory process of the liver. Furthermore, on careful examination of the left renal region no evidence of a return of the former growth could be detected. The internal organs were in good condition, and in the liver no other nodules could be found. The absence of any inflammatory reaction at the junction of the tumor with the normal liver substance was the only sign that pointed against the presence of an abscess. In short, it was found to be impossible to determine with any degree of certainty whether the tumor was an abscess or a metastatic carcinomatous nodule. As the remaining kidney was already impaired, it was thought that, even should the swelling prove to be an abscess, an attempt at drainage would be associated with considerable danger of an acute peritonitis, and that even if this complication were avoided, the continual discharge from the abscess wall would militate against the patient's recovery. On the other hand, in case the growth were malignant, it was evident that the only hope of success lay in its complete removal. Even after the tumor had been sent to the laboratory a provisional diagnosis of abscess of the liver was made after a thorough macroscopic examination, and the histologic revelation of adenocarcinoma came as a great surprise.

## EXPERIMENTAL RESECTION OF PORTIONS OF THE LIVER.

The exhaustive articles of Langenbuch[2] and of Terrier and Auvray[1] give in detail the interesting animal experiments of Glück, Tizzoni, Griffini, Podvisotzky, Ponfick, Tillmanns and Ceccherelli. Ponfick[5] found that it was possible to remove three-fourths of a dog's liver without permanent injury to the animal, and that in thirty days the organ had regained its normal size. Regeneration was partly due to hypertrophy, but mainly to multiplication of the remaining liver cells. No new lobules were found. Judging from analogy, the surgeon would naturally infer that in man large portions of the liver might be removed and the patient recover; and the reported cases prove that the suggestion is well founded, as in some instances large areas have been resected and the patients have regained perfect health.

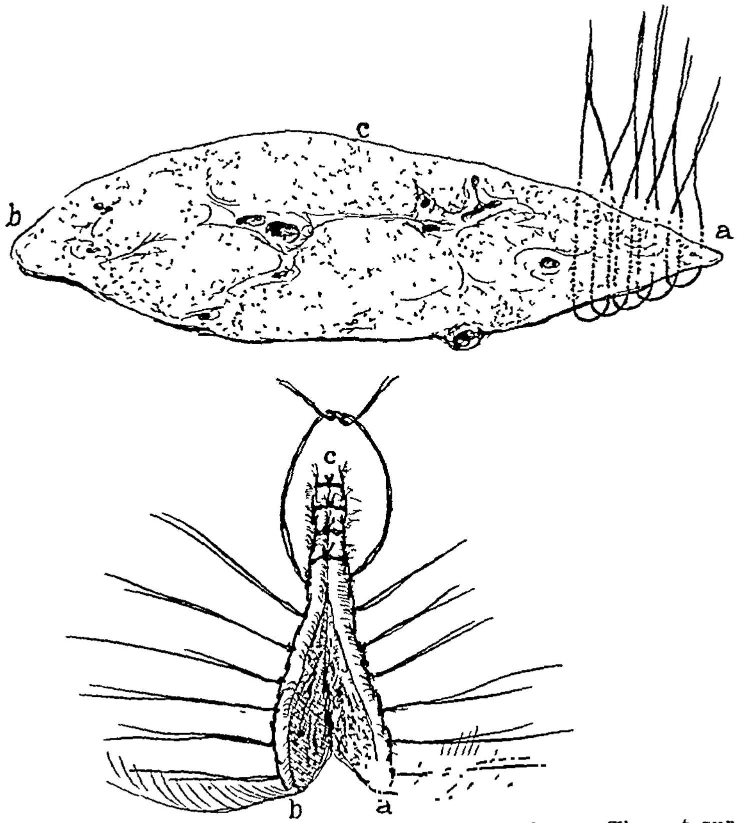

Fig. 6.—Method of controlling hepatic hemorrhage The cut surface represented in the upper sketch measures 16x6 cm. Mattress sutures were applied about 1 cm. from the line of section. Each overlapped the other so that every particle of liver substance was controlled. Pagenstecker sutures were used, reinforced by catgut, where necessary. The large vessels were readily picked up with forceps and tied freehand. After all the sutures had been tied and lifted up, *a* and *b* tended to come together. Beginning at *c*, corresponding opposite sutures were drawn across and tied to each other. The approximation was good, but not quite so accurate as one would infer from the sketch.

## INDICATIONS FOR RESECTION OF A PORTION OF THE LIVER.

It is important to determine (1) whether the growth be malignant or not; and (2) if malignant, whether it is primary or secondary. In the case of metastatic neoplasms, as a rule, operation is contraindicated, inasmuch as they are usually multiple. Primary carcinoma or sarcoma of the liver is rare. Should the hepatic growth be primary, the glands along the vessels and at the base of the liver should be carefully palpated to ascertain whether they have become involved. This point was first insisted on by Tuffier.[6] In cases of lymphadenoma, with secondary nodules in the liver, operation is not advisable. In all cases of liver growths the following points should be carefully considered: (*a*) Whether the growths be single or multiple; (*b*) situation; (*c*) size; (*d*) whether they are pedunculated or not.

If the growths are multiple and scattered over a wide area, removal is difficult or impossible. On the other hand, provided that they are near the lower edge of the organ, resection is feasible. In fact, in the majority of cases the situation is all important.

The size is of little importance when the growth is pedunculated and situated near the lower margin of the liver. In the case of a large tumor, however, located near the middle of the organ, removal is exceedingly difficult or impossible. If it is located near the edge, amputation is not difficult, but if it is near the middle of the lobe, a very large portion of the liver must be resected, or a cavity is left which may be the source of an alarming or even uncontrollable hemorrhage. When the growth lies near the portal vein or hepatic arteries, operation is contraindicated, since large branches of these vessels are liable to be injured with a resulting necrosis of correspondingly large areas of liver substance and the death of the patient. If the growth be pedunculated, its removal is easier, inasmuch as the liver substance forming the pedicle is much tougher than other portions of the organ. This toughening is due to partial atrophy of liver cells.

## METHOD OF PROCEDURE.

After having decided that the growth is to be removed, free exposure of the liver is absolutely necessary. The abdominal incision is lengthened, and may be curved to the right or left as desired. If the liver is freely movable, the greater part can be brought out of the abdomen; but if the organ is fixed, it will be necessary to loosen it. This is accomplished by severing the suspensory and round ligaments and, if necessary, to a limited extent the ligamentous attachments of the diaphragm. Care must be exercised to avoid injury to the pleural or pericardial cavity, and in case of such an accident the opening should be immediately closed with catgut sutures. The mobility of the liver may also be considerably increased by cutting through the cystic duct, as was done in this case, after which two-thirds of the liver was easily brought outside the abdomen. If the liberation of the liver obtained in this manner is still insufficient, portions of the lower ribs may be cut through and turned back. This free exposure of the liver will be found of the greatest comfort to the operator during the subsequent steps of the operation; for not only is he able to control the blood supply much more thoroughly, but he is also working outside the body instead of deep down in the cavity.

## TEMPORARY MECHANICAL CONSTRICTION.

Prior to cutting into the liver, a constricting band, if possible, should be thrown around the organ, at least an inch or more from the line of section. Many surgeons have employed strong rubber tubing; or a long piece of gauze twisted in the form of a rope, as used in this case, will answer equally well. Even *after this* has been drawn tight and clamped with forceps, it must be carefully watched throughout the entire operation, as it is liable to slip from the slanting liver substance and thus fail to prevent a free hemorrhage.

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[6] Tuffier: Bull et mém de la Soc de Chir. de Paris, 1897,

### THE INCISION INTO THE LIVER SUBSTANCE.

When we remember the great number of blood vessels that are present one can readily understand the dangers connected with the removal of a large segment of liver substance. In Langenbuch's most graphic account of his experiences we are told that during an operation the hemorrhage was so sudden and severe that the abdomen was in an instant full to overflowing with blood and the field of operation was obliterated. Any one who has read his account will certainly never fail to have plenty of assistants, and every conceivable requisite is at hand to meet any similar emergency. Now-a-days, fortunately, the picture is not so disheartening, thanks to the improvements in technic introduced by Keen, Kousnietzoff[7] and Auvray. I shall not attempt to give in detail the various methods employed, but shall only sketch very briefly the procedures that have apparently yielded the best results.

The liver substance may be severed by: (1) The knife; (2) the cautery (at a dull red heat); (3) the blunt scissors or curette; (4) blunt dissection, peeling the tumor out with the thumb nail (Keen). Each method has its advantages and its drawbacks. The knife gives a clean-cut surface, but many vessels are opened and bleed freely. The cautery leaves a charred surface, and vessels that are temporarily controlled may bleed later. The operator hardly feels safe in trusting solely to small plugs of clotted blood to control the small and medium-sized vessels, when he knows that the escape of one of these may mean fatal hemorrhage. On the other hand, nothing checks capillary hemorrhage better than the cautery at a dull red heat. Blunt scissors, the curette and blunt dissection with the finger leave a much rougher base, but injure far fewer vessels.

### THE CONTROL OF HEMORRHAGE.

Probably the safest plan is to control the bleeding before making any incision into the liver or to tie off different segments as they are severed. Langenbuch has pointed out that the liver substance often shows pathologic changes when tumors are present. Thus there may be a hyperemia associated with an increased friability of the organ rendering the application of sutures difficult. On the other hand, there may be an atrophy of the liver cells accompanied by an increase of connective tissue, which renders the tying of ligatures a relatively easy procedure.

*Needles.*—One of the chief sources of hemorrhage in liver operations has been from the needle holes; in fact, in some cases, the free oozing from these sources has been uncontrollable. Thanks to the ingenuity of

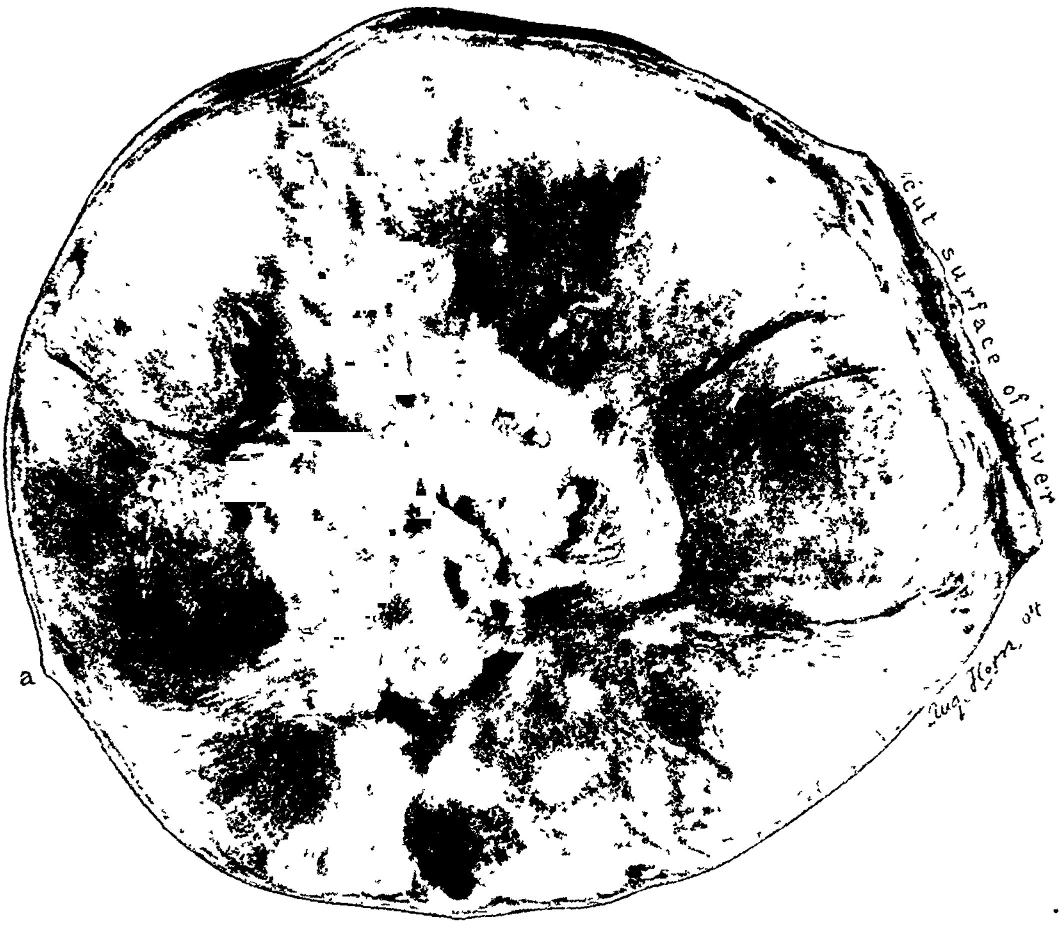

Fig. 7.—Secondary carcinoma of the liver (natural size). As the specimen was very soft it was impossible to cut it before hardening Encircling the entire growth is a definite capsule varying from 1 to 3 mm. in thickness. *a* is the sharp edge of liver substance that passed over the lower surface of the growth. This growth bears much resemblance to the parent kidney tumor (Fig 4), and in its central portion has undergone complete necrosis The cut surface of the liver indicates the line of amputation.

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[7] Kousnietzoff (Kuznetsoff): Laitop. russk. Chir., S. Peterb, 1901, 6, 888 931. Mikulicz wrote the preface to this article and mentioned the number of cases operated on by him.

Kousnietzoff, we now possess a needle that renders the application of sutures almost or entirely bloodless (Fig. 1). This needle may be straight or curved; it is flat on the sides, and rounded at both ends. It is gently and slowly forced through the liver substance, and, being blunt, pushes the blood vessels to one or the other side. This needle has yielded admirable results in dogs, and Mikulicz, who has employed it six times in the human liver, says of it, with some enthusiasm: "To my mind Kousnietzoff's needles represent the egg of Columbus in the technic of liver surgery."

*Cautery.*—Keen slowly and cautiously employed the cautery at a dull red heat, and took twenty minutes to cut off the desired segment. He was usually able to see the larger vessels before they were opened. These he tied, both proximally and distally, and then burned through them. If a large vessel was opened before being tied, he plugged the opening with his left index finger, while with the right hand he passed a ligature threaded on a curved needle carefully through the surrounding liver substance; the ligature was then tied slowly by an assistant. In this manner he was able to remove the growth with little difficulty. Keen insists on the use of dull red heat, and points out that, if the tissue is cut through too rapidly, a sufficient eschar is not formed to check the oozing. In some of his work he combined blunt dissection with the finger with the use of the cautery.

*Sutures.*—Kousnietzoff has devised a rather complicated continuous suture (Fig. 2), which practically resolves itself into a series of mattress sutures. Auvray has advised a continuous chain suture which he has found to work well (Fig. 3), its object being to distribute more equally the strain on the liver substance and so render it less liable to tear. The sutures of Kousnietzoff and Auvray would seem, from the illustrations, to be open to the objection that hemorrhage might occur from the spaces between adjoining sutures. In our case simple mattress sutures were introduced with the blunt needle (Fig. 6), each suture overlapping the other so that no area was left unprotected. After the application of three or four sutures about 1 cm. from the line of section, the liver was severed over a corresponding area, an assistant in the meantime holding the placed sutures taut. The tumor was grasped firmly in order to prevent oozing.[8]

The sutures were now slowly and snugly tied; others were then applied in a similar manner, and the entire liver growth was readily removed in about ten minutes. The mattress sutures were tied after the tissues had been cut, instead of before, because the liver was stretched near the tumor, and there was danger that after tension was relieved they would be too loose to thoroughly control the vessels. Five or six large vessels were encountered. These were readily picked up with forceps and tied.

*Suture Material.*—In many of the reported cases catgut was used exclusively. In this case fine Pagenstecker thread, reinforced with catgut, was employed. Catgut is, of course, the material generally preferred, but where there are such large vessels and so much tension, sutures of silk or linen thread are, on the whole, more reliable; although the silk will gradually work its way out.

*Treatment of the Stump.*—After controlling all bleeding, it remains to deal with the raw area. Where the cautery has been used, one can not expect to bring charred surfaces together and get union. Again, only in very exceptional cases would it be possible to remove a large tumor and have such a satisfactory folding as in this case. As a rule, the cut surface must be left as it is. Some surgeons advocate stitching the omentum over it. Others close the abdomen without drainage. From a careful review of the cases I gather the impression that it is better to drain. Where this is done, bile is often found escaping through the wound from the cut surface of the liver for several days, and if the abdomen has been closed without drainage, this must of necessity flow into the abdomen. Keen has laid stress on this point, but says that the danger from absorption "seems to be more theoretical than practical." In this case an iodoform drain was carried to the under surface of the liver and another to the upper surface along the line of the sutures. Pfannenstiel[9] has called attention to the possible danger of using iodoform gauze where large areas of raw liver substance are left, and prefers sterile non-medicated gauze for this purpose.

### COMPLICATIONS THAT MAY ARISE DURING AN OPERATION.

The operation is sometimes beset with many difficulties. Where the tissue is very friable the sutures may cut through the liver substance. To overcome this difficulty Ceccherelli and Bianchi used decalcified bone plates over the upper and under surfaces and sutured through them. In some cases, after removal of a nodule from the center of the liver, when it was impossible to check bleeding by sutures, the cavity was packed with gauze, held firmly in place by sutures passed through the liver substance.

In other cases, where it was impossible to check oozing, a rubber ligature was firmly secured around the liver, slipping being prevented by means of two hat-pins passed through the organ at right angles to each other. The edge of the liver was then sewed to the peritoneum of the abdominal wound. In some of these cases the growth was cut away and the stump left to granulate up. In other instances the growth was left to slough away, the constricting band being tightened from time to time.

### IMMEDIATE AFTER-RESULTS.

Hemorrhage is the most serious complication. It may take place after a few hours or at the end of a day or two. The employment of the suturing method of Kousnietzoff or Auvray or the overlapping mattress suture will undoubtedly render secondary bleeding far less frequent. Where hemorrhage occurs, however, the abdomen should be opened at once, for the patient is not always exsanguinated. If the bleeding points can not be controlled a rubber ligature should be applied and prevented from slipping by means of hat-pins. The stump can then be treated extraperitoneally, the edge of the liver being fastened to the peritoneum.

### MORTALITY.

Terrier and Auvray collected 38 cases operated on for the following diseases: Sarcoma, 4; carcinoma (considered primary at the time of operation), 7; sec-

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[8] In bisecting the uterus there is always free hemorrhage, especially in the case of a large myomatous organ. Dr. Kelly has taught that strong traction on each half almost completely checks oozing. This principle was applied to the distal segment of the liver with very satisfactory results. It must be said, however, that the liver substance removed with the tumor, in this case, was relatively small.

[9] Pfannenstiel: Med. Centr. Ztg., Berl., 1898, lxvii, 177-179.

## CASES OF RESECTION OF PORTIONS OF THE LIVER REPORTED SINCE 1899

| Reporter and Reference | Sex | Age | Duration Nature and Size | Method of Removal | Treatment of Liver Stump | Result | Remarks |
|---|---|---|---|---|---|---|---|
| Carl Beck Chicago Med Recorder 1901 xxi 383-386 | Male | 20 | Followed kick 5 years before "Angio adenoma the size of man's head occupied the entire left lobe | Controlled by rubber catheter, held by two hat pins through stump Half the tumor removed, half left to slough off | Extra peritoneal | Recovery | Largely an angioma, but with certain adenomatous areas |
| Harrison Cripps Brit Med Jour Lond 1903 ii 18 | Male | 60 | Pain after heavy lifting 11 years before Angioma the size of a child's head | Slightly adh to abd wall incised, escape of 50-60 oz blood Tumor enucleated by dissecting, Volkmann's spoon Bleeding controlled by sponge pressure | Abd closed without drainage | Recovery | Angioma partly calcified |
| Dahlgren Nord Med Ark Stockholm 1902, 3 f ii No 14 1-21 | Female | 33 | Over a year Angioma from left lobe larger than a kidney—pedicle 6 cm broad, 1 5-2 cm thick | Bleeding controlled by continuous catgut sutures Tumor removed by cautery | Omentum attached to stump | Recovery | Gives good resum of the literature |
| Macnaughton Jones Brit Gynec Jour Lond 1901-2, xvii 40-43 | Female | 27 | One year Angioma 3¼ x 3x2¼ inches at liver Irregular spaces lined by endothelium and filled with blood | Tied by numerous ligatures, little bleeding | Pedicle packed above and below with iodoform gauze | Died 18 hours after operation | Much shock at operation |
| Giulio Filippini Policlin Roma 1901 viii Sez Chir 222-240 | Female | 32 | Tumor of left lobe the size of an adult head 20x15x5 6 cm | Rubber ligature and suture | Attached to abdominal wall | Recovery | Angioma |
| Giulio Filippini same reference | Male | 62 | Cancer of the liver involving the entire left lobe | Rubber ligature | Attached to abdominal wall and allowed to slough off | Recovery | Primary cancer of the liver |
| Duret Ass Franc de Chir Proc Verb Par 1898 xii 363-371 | Female | 46 | Six months Carcinoma, 16 cm in its greatest diameter | Cut away as a wedge Vessels controlled by a few sutures raw surfaces approximated by continuous catgut | Iodoform gauze drain, exerting pressure | Recovery | Gall bladder contained calculi |
| Jonnesco Bull et Mem Soc de Chir de Bucarest 1902-3, v 104 | Female |  | Size of a small orange, adherent to the transverse colon | Tumor resected a modified Auvray ligature employed | Closed without drainage | Recovery | Thought to be syphilitic Wound opened on 3d day to let out some blood |
| Haubold Annals of Surgery 1904 xxxix 240 | Female | 26 | Eight months Gumma the size of a large orange | Removed by blunt dissection with scissors | Hot saline Gauze checked oozing—surfaces approximated by deep catgut suture Drainage | Recovery | Growth first thought to be malignant |
| Leonte Bull et Mem Soc de Chir de Bucarest 1900-01, iii 161-164 | Female | 50 | Adenocarcinoma in the right lobe the size of a lemon Weight, 813 grams | Sutures placed, tumor removed |  | Died in 24 hours Anuria from renal disease | No bleeding |
| Thompson Tr Texas Med Assn, Austin, 1899 xxxi, 216-229 | Female | 30 | Gumma, size of a small orange, occupied parts of both lobes | Tumor removed with scissors transfixed by two needles at right angles Appl of rubber | Fastened to abdominal wall Infection | Recovery | Histologic examination showed gumma |
| Nicholson Interstate M J St Louis 1902, ix 427-430 | Male | 39 | 3¼ inches broad, projected 2 inches from surface of liver | Cut out with scissors vessel openings closed with chromicized catgut | Packed with gauze partially removed 2d day, some bleeding Removed 4th day edge of abdl wound repaired and closed | Recovery |  |
| Pfannenstiel Allg Med Centr Ztg, Berl 1898 lxvii, 177-179 | Female |  | Growth noticed years before About 12 pounds Abd before operation 116 cm in circumf (considerably more than that of a pregnant woman at term) Tumor pale white alabaster looking" fluctuating—sprang from under surface of left lobe On section composed of large and small blood spaces—some spaces as large as a walnut others as big as an apple Micro exam showed growth to be an angioma | A furrow made in liver substance both anteriorly and posteriorly at base of growth Tumor then shelled out partly by cautery, partly by blunt dissection—bleeding vessels controlled by catgut passed with a Deschamp needle, in part by pressure, in part by strong traction on tumor Some broad clamps applied, stump about 15 cm broad thus produced—tied with about 20 catgut sutures, tumor cut away with cautery | Large funnel-shaped stump left attached in upper angle of abdomen wound Packed with sterile non impregnated gauze Length of operation 1¾ hours Pulse at end, 120-140 Discharge at first bloody, later bile | Recovery | Resembled an ovarian cyst, but on vag exam uterus and appendages were clearly outlined The continual traction of tumor had probably rendered the liver substance of pedicle firmer than normal Very little urine at first probably from great loss of blood Salt sol given freely |
| Maresch (Hochenegg) Ztschr f Heilk, Wien u Leipz 1903 xxiv 39-50 | Female | 5 | Three years, at first slowly, later rapidly Abd greatly distended Lymphangioma 20x18 cm | Punctured supposedly an ovarian cyst, pedicle about 7 5 x 2 5 cm Collar of peritoneum drawn back Tumor then dissected out bluntly with forceps and elevators Tremendous bleeding from torn vein Abd full Firm pressure made Hem controlled with catgut sutures and needle | Incision 6 cm long made toward right abdomen wall, 3 cm below the xiphoid Pedicle of tumor sewed into this transverse incision Original incision then closed | Recovery, discharged on 21st day | Supposed to be an ovarian cyst |
| Terrier et Auvray Revue de Chir 1898 xviii, 719 |  | 50 | Cancer the size of a closed fist, probably secondary to growth in bowel Adherent | Chain sutures of Auvray One vessel tied free hand | Packed with gauze | Recovery | Fistula still remaining, silk sutures came out gradually |
| Barkoff Russ Chir Arch St Peterb, 1903, xix 70-72 | Female | 40 | Ten years the size of a hen's egg, oval and yellow | Cut out elliptical depression approximated with catgut No hemorrhage | Closed without drainage | Temporary recovery | Echinococcus |
| Cullen Thomas S | Female | 30 | Recognized less than a week before operation Adenocarcinoma of liver, secondary to primary growth in left kidney Growth size of child's head (Fig 5) | Cut away with knife after application of mattress suture Raw surface approximated (See Fig 7 in text) | Iodoform gauze drainage | Patient in good health 8 mos after operation | Evidence of return in scar where left kidney was removed nearly 2 years ago |

ondary carcinoma, 1; adenoma, 6; angioma, 4; tumors of an indefinite character, 3; gummata, 9; biliary cysts (non-parasitic), 4.

Of the patients, 32 recovered and 6 died. The deaths were due to hemorrhage, shock or sepsis. Keen has collected 74 cases. Some of these are included in Terrier and Auvray's lists. Sixty-three of the patients recovered and 11 died—a mortality of 14.9 per cent.

The causes of death were: Shock, hemorrhage and exhaustion, in 8 cases; septicemia, in 2 cases; pulmonary embolism, in 1 case.

In this group of Keen's are three of his own cases; all three patients recovered. As mentioned elsewhere, Mikulicz has had six cases with equally happy results.

*Patient.*—On Jan. 6, 1903, I saw Miss T., in consultation with Dr. E. R. Trippe. The patient was 30 years of age and of very slight build. For six months she had felt a small lump in the left side, but had hesitated to speak of it until a week previously. It was first noticeable in the region of the left kidney and at first had increased in size gradually, but later at a much more rapid rate.

*Examination.*—On examination the left renal region was found to be filled by a tumor which extended upward under the ribs, and downward almost to the pelvic brim. It was slightly movable.

*Operation.*—On January 8 an incision was made over the most prominent part of the tumor. This incision extended from the quadratus lumborum behind, obliquely downward almost to the median line just above the pubes. The tumor was everywhere firmly adherent and was liberated with a great deal of difficulty. Only at one point was there any escape of its contents. Here the capsule had broken slightly, allowing the escape of a small amount of friable, carcinomatous-looking material. After liberating all adhesions and tying every bleeding point with catgut the renal vessels were exposed and tied first *en masse*, and then singly. The abdominal cavity was opened in several places as the tumor was intimately blended with the peritoneum. We were, however, able to protect the abdomen from infection. The muscles were brought together with silver wire, the skin with silkworm gut. The patient, although much shocked, gradually recovered. Her temperature rose on one occasion to a little above 100 F. She made an uninterrupted recovery and left the hospital at the end of the fifth week.

*Result.*—On March 9, 1903, I received a letter from the patient saying she was very much improved; the wound had healed entirely and she was feeling much stronger. I saw her from time to time and she showed continued improvement and regained perfect strength.

*Subsequent History.*—On June 2, 1904, I received a message from Dr. Trippe saying that the patient was not so well and that her temperature was 102.5. Five days previous to this the patient had noticed a small lump just below the free edge of the ribs on the right side. At first it gave her no concern, but apparently doubled[10] in size within two days and during the following two days again showed marked enlargement.

*Examination.*—When I saw her it occupied the region between the edge of the ribs and the anterior superior spine. It was round, tense and somewhat movable. We were very careful in our examination, fearing that it might be a friable secondary growth following the removal of the large carcinomatous kidney in January, 1903. Her pulse was rapid; her temperature was 102.5 F.

*Operation.*—As she was losing ground rapidly an immediate operation was decided on. An incision having been made over the tumor, it was found to be perfectly smooth and free from adhesions. The incision was continued upward to the free margin of the ribs (Fig. 5) and downward almost to the anterior superior spine. The growth proved to spring from the liver; it was larger than a child's head and was almost globular in form. The edge of the liver appeared as a slightly elevated ridge, forming a crescent over the center of the anterior surface of the growth. Attached to the inner side of the growth was the gall bladder. I carefully examined the liver, but failed to find any secondary growths and also was unable to detect any evidence of metastases in the abdominal organs or any thickening in the renal region on the left side. The right kidney was about half as large again as usual, and was perfectly normal, considering the absence of the other. The urine, however, contained some pus and a little blood. On careful examination it was imposible to determine whether we were dealing with a cystic new growth or an abscess formation. In the former case we were at a loss to tell why there had been as yet no adhesions and why the surrounding liver substance was so firm. On the other hand, it was difficult to account for the elevation of temperature if no abscess was present. After some hesitation we decided to remove the growth together with a small portion of healthy liver substance. The gall bladder was exposed, the cystic duct clamped and cut and the proximal portion of the duct tied off. The lower half of the liver could then be readily drawn out through the abdominal incision. It was everywhere walled off from the abdominal contents by gauze, and a gauze rope was securely fastened around the liver about an inch above the point at which the cut was to be made. A cautery was called for, but—fortunately, as after results showed—the instrument would not work. I then took a long, blunt needle and, starting from left to right, passed mattresss sutures through the entire substance of the liver. These were about 1 cm. apart and each one overlapped the other for about 2 or 3 mm. The greater number of sutures consisted of Pagenstecker thread, the supplementary ones being of catgut. After placing two or three mattress sutures I commenced to cut, the tumor at the same time being held taut. The sutures were then tied. This process of applying sutures and cutting and then tying was continued until the entire growth had been removed. Five or six large blood vessels were encountered, which spurted freely. These were picked up with artery forceps and tied freehand with fine Pagenstecker thread. The entire growth was removed without the loss of more than two drams of blood. After the sutures had been tied there was absolutely no bleeding from the surface. After removal of the growth there remained a raw surface fully 16 cm. in length and 6 cm. in breadth. On making traction on the sutures I found that the raw surface could be rolled in on itself so that the two halves formed flaps. These were brought together, until little or no raw substance remained. The ends of the sutures that had already been tied were utilized to bring the opposite sides together. Iodoform gauze was placed beneath the edge of the liver and also on its surface. Although the patient was apparently in a desperate condition when she went on the table, she stood the operation well, and when she was taken from the operating room her pulse was only 104. On the next day her temperature dropped to 100 F. The general condition was excellent and the pulse 84. To look at her one would hardly have realized that any operation had been performed. She made a rapid recovery and left the hospital in about four and a half weeks.

*Result.*—I saw her on Aug. 4, 1904. She was looking very well and had regained her color; the wound had practically healed. She had little or no pain. On the left side there were areas of suspicious thickening in the old renal scar.

Note of Sept. 7, 1904: On examination some of the liver sutures are seen working their way through a small sinus. They are giving no trouble, however. The patient is up and around, apparently in good health. On the left side along the linear incision, where the kidney growth was removed a year and a half ago, several nodules are felt. These are rapidly increasing in size. One of them is fully 6 cm. in diameter and has already become slightly attached to the skin. It is bluish in appearance.*

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[10] The tumor had evidently existed for a considerable length of time, but was not recognized until it was suddenly forced from beneath the ribs on account of its increasing dimensions.

### PATHOLOGIC REPORT OF KIDNEY.

Miss T. Pathologic No. 6364. The specimen, roughly speaking, is kidney-shaped, irregular in outline and covered by many adhesions. It measures 20x13x12 cm. Attached to the lower end is the ureter, which is about 4 mm. in diameter. On palpation the tumor seems to be cystic. This condition is more noticeable at the upper pole. Toward the lower end the growth is firmer. On section little or no renal tissue is demonstrable. The tumor has a capsule varying from 2 to 5 mm. in thickness. Passing off from this capsule into the tumor are many connective-tissue partitions which divide the growth into large and small nodules. The greater part of the tumor is soft, and consists of a spongy-looking material resembling carcinoma. The more solid portions of the growth are homogeneous. At numerous points there has been disintegration of tissue. The growth, as a whole, is yellowish-white in appearance, but where degeneration has taken place the tissue is of a bluish tinge or is distinctly yellow.

*Histologic Examination.*—The capsule is composed of fibrous tissue, sharply outlined from the tumor, which is made up of a glandular growth. The gland type is particularly well marked. There are long stems carrying delicate blood vessels and covered by a single layer of epithelium. Passing off everywhere from these stems are secondary stems, likewise covered by one layer of epithelium. The epithelial cells are low cylindrical or cuboidal in type. Their nuclei are round or oval and stain fairly deeply. In many places a definite glandular arrangement is visible, but the tendency toward the papillary formation is everywhere in evidence. Here and there nuclear figures are visible. The specimen was hardened *en masse;* consequently one would not expect to find many cells undergoing division. In the older portions of the growth the cells have so multiplied that they form a homogeneous mass. At many points coagulation necrosis has taken place and the cells do not stain at all. Such an area, as a rule, is entirely devoid of infiltration, but here and there are aggregations of polymorphonuclear leucocytes. At some points are masses of bright orange pigment, evidently a result of old hemorrhages. Such masses have a fuzzy appearance and closely resemble the outer covering of a chestnut. The specimen is undoubtedly from an adenocarcinoma. The cells of this growth bear a striking resemblance to those of the collecting tubules of the kidney. Sections of the ureter just below the pelvis of the kidney show that it is perfectly normal.

### PATHOLOGIC REPORT OF LIVER TUMOR.

The specimen consists of a tumor removed from the lower portion of the liver. Attached to this are the gall bladder and a small amount of normal liver substance. The tumor is 16 cm. long, 14 cm. broad and 13 cm. in its anteroposterior diameters. It is slightly lobulated, has a smooth surface and appears gradually to blend with the healthy liver substance. Passing over the middle of the lower surface of the tumor is a thin strip of liver substance representing all that remains of the lower edge of the liver. The raw surface corresponding to the liver attachment is 16 cm. in length, 6 cm. in breadth. The liver tissue is apparently normal. The growth on palpation seems to be filled with thick fluid contents and strongly suggests an abscess.

The specimen was hardened in alcohol before being opened. It is surrounded by a capsule 1 to 2 mm. thick. The interior is composed of a very soft homogeneous substance. In the outlying portions, however, it is rather spongy. In the hardened specimen the growth presents a mottled appearance; in places it is reddish-blue, at other points yellowish-white in color. Only a small amount of healthy liver substance is present. The gall bladder is firmly attached to the upper and inner side of the growth and measures 7 cm. in length, 3 cm. in breadth.

To describe the histologic appearance of this tumor would be to repeat what has been said of the histologic appearance of the kidney. It is identical in every particular. In other words, it is an adenocarcinoma secondary to the primary growth in the kidney. It also contains numerous areas of degeneration.

In 1892 T. S. Westcott tabulated 20 cases of partial resection of the liver for Dr. Keen. A second article by Keen, in 1897, contained a tabulation of Cases 21 to 59 by G. W. Spencer. For Keen's article, published in 1899, H. H. Cushing and M. L. Downs have tabulated all additional cases to that date. The accompanying tabulation includes the cases that I have been able to gather from the literature since 1899; for convenience the lines laid down by Keen have been followed.

This case is unusual for the apparently rapid development of the hepatic growth, the symptoms being of less than a week's duration. It is further unusual to find a single metastatic nodule in the liver following a primary growth in the kidney.

Considering the fact that the patient had only one kidney, that the urine contained blood and pus, that the temperature was 102.5 F., and the physical condition poor, I advised letting the growth alone. Dr. Trippe, who was not only the patient's physician, but also a near relative, on the grounds that her condition was rapidly growing worse and that she could not last many days, insisted on its removal. That he was right is clearly shown by the temporary recovery of the patient, and I freely confess that any credit for the operation is due entirely to him. Certainly no case that I could find in the literature offered less prospects of even a temporary success, but Dr. Keen, when reporting his last case, said: "After my experience with these three cases I should hardly hesitate to attack almost any hepatic tumor without regard to its size."

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# RECLINATION OF THE LENS:

## UNDER CERTAIN CONDITIONS A JUSTIFIABLE OPERATION.*

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A study of the literature of couching reveals the fact that earlier writers made a sharp distinction between depression of the lens and reclination, in the one the lens being pushed bodily downward while in reclination an attempt is made to turn it on its axis so that ultimately its anterior surface is uppermost. In reality, however, an attempt at one procedure is likely to result in the other, so little is the course of the lens under our control, and no distinction will be made in this paper, although as late as 1836 Argyll Robertson[1] said he had never seen the lens rise after reclination, although he had frequently seen it after depression, and that the former, if properly performed, is rarely productive of much inflammatory action.

Depression is the oldest known operative procedure for cataract,[2] and either by the insertion of the needle through the cornea, keratonyxis, or the sclera, scleronyxis, until the middle of the eighteenth century held complete sway, when it was superseded by extraction, and if since then it has been held in slight respect it is largely because it has been forgotten and not because it is without value.

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*Feb. 24, 1905: Dr. Trippe informs me that from time to time a few stitches have come away from the liver, but have occasioned absolutely no inconvenience. The nodules in the cicatrix in the side where the kidney was removed are somewhat larger, but they do not seem to cause her any inconvenience. "Her general condition seems to be very good."

* Read in the Section on Ophthalmology of the American Medical Association, at the Fifty-fifth Annual Session, June, 1904.

[1] J. Arygll Robertson: Edinburg M. & S. J., vol. xlvii.

[2] Czermak: Augenarztlichen Operationen, Wein, 1904, Heft. 13-14, pp. 823-827.

A description of the operation is found in Celsus,[3] and Petit states that it was in vogue in Egypt during the reign of Ptolemy Philadelphus. It gradually fell into the hands of charlatans and, although Wilburg[4] in 1785 attempted its revival as an original operation, it was mostly practiced by fakirs devoid of medical skill or knowledge, who traveled around operating in public and, after receiving their fee, departed for new fields, with no thought of the future welfare of the unfortunate sufferer, and the frequent loss of sight which resulted was in large measure due to the entire lack of care in the after-treatment of the case, and the unfavorable results must not be accorded full credit in estimating the ultimate value of the procedure.

The method employed by surgeons was with slight variation that described by Velpeau[5] and Lawrence,[6] while the more sensational procedure of the quack is described in the following account of the methods used by the native operators in India, taken from the *Medico-Chirurgical Review,* 1858.

"The operator commenced by wrapping a thread around the blade of a lancet to within an eighth of an inch of the point and a brass probe with a blunt point was similarly treated. The patient was now seated on the ground and the operator placed himself in front. He then opened and fixed the eyelids with the fingers of his right hand and desired the patient to look downward and, doing so, he thrust the lancet into the eye about a line beyond the cornea and, on its penetrating to the depth allowed by the thread, withdrew it and closed the lids. In a few seconds the eye was again opened and the probe was introduced with a boring motion till it had fairly entered the eye, when he turned the point downwards. A small tassel of lint was now placed between the handle of the probe and the cheek and the eyelids closed. A lighted ball of charcoal was now brought close to the eye for a few seconds, then elevating the handle of the probe, an endeavor was made to depress the lens. Failing to do this, the lids were again closed with the probe *in situ* and a second attempt was made. When the lens yielded and, with the probe still in place, the patient was asked if she could see. then the probe was withdrawn, the eye moistened with a cloth and the patient allowed to walk about, expecting the eye to be well in a few days."

Very few surgeons of the present day have had personal experience in couching the lens and, in the light of the published statistics of successes in extraction and of untoward results in traumatic dislocation of the lens, it is not to be wondered at that the procedure has few adherents. Yet one must not forget that before extraction was known reclination was in a measure successful, and that the effect of traumatism in the cases we see to-day is such an important factor in prognosis that were reclination practiced with due attention to aseptic methods and with the improved instruments at our hands, there is no doubt but that a certain success could be attained.

The argument of this paper is, first, that reclination has been successful in many instances; second, that it may be safely done; third, that it is under certain conditions entirely justifiable.

Evidence is not wanting to prove the truth of the first assertion. Argyll-Robertson,[1] in a paper read before the Medico-Chirurgical Society of Edinburgh in 1836, cites the following statistics of the operation for cataract by various methods:

| Operator. | Cases. | Cured. | Relieved. | Failed. |
|---|---|---|---|---|
| Graefe | 14 | 12 | .. | 2 |
| Hotel Dieu | 43 | 24 | 4 | 15 |
| Bowen | 160 | 154 | .. | 6 |
| Lusardi | 5,034 | 4,168 | .. | 866 |
| Dupuytren | 306 | 263 | .. | 43 |
| Cloquet | 166 | 97 | .. | 69 |
| Morand | 6 | 3 | .. | 3 |
|  | 5,729 | 4,721 | 4 | 1,004 |

This gives 82 per cent. of successes, although it must be borne in mind that the acuity of vision which was then termed success was not that of to-day, and that ability to distinguish large objects and to safely go about was considered a cure. He then personally reports 115 cases of reclination with successes in 94, or 81 per cent., and certainly one is justified in assuming that reclination offered as good results as the other methods then in vogue. He says that if properly performed, reclination is rarely productive of much inflammatory action, and reports two cases where an opportunity was offered to examine an eye some years after a couching and in both the lens was firmly bound down by the hyaloid membrane with the vitreous perfectly clear and with no trace of the course of the lens, and quotes Scarpa as saying that internal ophthalmia (iridocyclitis) had only happened in a single instance during a long practice.

Power[7] says that it is singular that a method of such antiquity and even now practicable should have passed so completely, and quotes Hornley, who reported in 1843 50 cases with only two failures, and Maynard, who reported 16 cases of extraction where the other eye has been couched by native operators often with brilliant results.

Andrew[8] reports a case where the vision was 20/70 eighteen months after dislocation of the lens and a case where traumatic dislocation resulted in a vision of 20/30, while a reclination of the fellow eye with fluid vitreous and tremulous iris gave a vision of 20/70.

Beer says: "I have neglected no opportunity of examining carefully after death the eyes of those who had undergone depression or reclination. In almost all I have found the firm, undissolved lens generally much diminished."

Haynes Walton[10] says: "Although displacement is a very inferior operation to extraction, it should not be condemned or made obsolete." And regarding the ultimate state of the cataract he says: "If the capsule is lacerated it is absorbed; if not, it may lie for years, and this is proved by dissection after operation."

Truc[11] treated two cases with depression and gives the following indications for this method: Risk from restless patients: violent bleeding and suppuration of the eyes; and Delorde[12] believes that the historical operation of depression should not be wholly abandoned as in certain cases good results may be obtained.

Barrett[13] reports a case of couching for cataract with perfect vision thirteen years afterward as follows:

> The subject of the following report presented herself at the Eye and Ear Hospital for treatment. Mr. Gault investigated

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[3] Brown: Historical Review of the Surgical Treatment of Cataract. Annals of Oph., April, 1904.

[4] Wilburg; Betrachtung Operationen des Staares, 1785.

[5] Velpeau: Op. Surg., vol. iii, p. 270, 1847.

[6] Lawrence: Treat. of Dis. of Eye, London, 1844.

[7] Power: Brit. Med. J., Oct. 26, 1901.

[8] Andrew: Brit. Med. J., Dec. 30, 1882.

[10] Haynes Walton: Prac. Treat. on Dis. of Eye, 1875, pp. 808-815.

[11] Truc: Deux cas de l'abaissement de la cataracte. Congr. Int. d'ophth., Aug. 4, 1900.

[12] Delorde: De l'abaissement de la cataracte. Ann. d'oculiste, 1901.

[13] Barrett: Australian Med. J., 1894, xvi, pp. 381-382.

the history and obtained for me this account. I think that it is only necessary for me to say that, if such an excellent result could often be obtained from couching, the ordinary relatively difficult cataract operation would fall into rapid discredit.

M. W., aged 60, widow for twelve months, a healthy looking woman, who says that she has never ailed at all. Thirteen and a half years ago she had an operation for cataract (she calls it couching), performed on her left eye by an Indian oculist at Ballarat. There was no anesthetic used and she was able at once to see the dark face of the operator. The vision had been failing in the left eye for two or three years and it sank to perception of light, before operation. Has had no trouble in the left eye since the operation with the exception of occasional attacks of slight pain in the region of the supraorbital nerve, for which she used blisters to the temple. There is also somewhat troublesome epiphora.

Condition of the left eye: Some dilatation of the lachrymal sac; slight chronic conjunctivitis, with a little general ciliary congestion; cornea clear; good anterior chamber; iris healthy; wobbles freely with movements of the eye; pupil reacts well to light; vitreous free from opacities. In its lower and anterior part is seen the shrunken remains of the lens, just behind the margin of the iris and resting on the ciliary body. The lens does not appear to move. Fundus normal. Tension normal. L. V. c. + 11 D. Sph. + 2.5 D. Cyl. horiz. = 6/6.

Canton[14] reports a case where useful vision was obtained for nearly twenty-five years.

Bourgeois[15] operated on three cases with permanent results and considers as indication the following: Fear of expulsion, bleeding, threatened infection, chronic bronchitis and fluid vitreous.

Enough authorities have been quoted to show that where personal experience has been had the operation of reclination is considered at times not only feasible but advisable. More modern writers, however, either decry the operation or are silent.

Meyer[16] says that it possesses only historical interest. It is constantly menaced with serious complications and merits no place in surgery.

Berry[17] does not mention it.

De Schweinitz[18] gives as his opinion that couching is no longer practiced.

Juler[19] believes that trouble nearly always arises and that the eye is generally lost from irido-choroiditis or glaucoma.

Noyes[20] says that it has become obsolete.

Fox[21] does not mention it.

I assume that the opinions of ophthalmologists of large experience who are not authors of text-books are quite necessary in forming an estimate of the value of any procedure and to this end I sent to 100 prominent surgeons in this country the following letter:

Jan. 1, 1904.

*Dear Doctor:*—Will you kindly aid me in getting a consensus of opinion on the advisability of couching the lens in cases of cataract where one eye has been lost by suppuration after an operation and there is present, either from a dacryocystitis or conjunctivitis, an infection by the staphylococcus or streptococcus. A recent article advocated a dislocation of the lens in such cases, but I find that most surgeons are opposed to the procedure and I am desirous of knowing whether the operation has been done often enough to warrant any conclusions. I shall esteem it a favor if you will express your opinion and return this letter to me.

1. Have you had personal experience in this operation? (*a*) How many cases? (*b*) Why was it performed? (*c*) What was the ultimate result?
2. Do you believe it is ever justifiable? If not, why not?
3. What would be your treatment of such a case as that outlined above?
4. On how many such cases have you performed linear extraction and what was the ultimate result? Yours truly.

## CONCLUSIONS.

Replies received from seventy-six are appended in tabulated form. From a study of these seventy-six replies, representing the opinions of the most prominent surgeons in this country, we may draw the following conclusions:

1. Of the entire number only seven have personally done the operation, and with one exception they believe it both justifiable and at times advisable.
2. Twenty-two have not done the operation, but believe that it is justifiable in cases where one eye has been lost by hemorrhage, in the very old, the weak and the insane, as a last resort when treatment of morbid conditions fail, when the general health is so poor that the needed restriction after extraction would cause serious risk or when there is prospect of early death.
3. Forty do not believe it justifiable and prefer extraction with certain precautions.
4. Seven do not express an opinion.
5. The agreement on the treatment of cases with dacryocystitis is remarkable; extirpation of the sac, obliteration by cautery or tying the canaliculi are advised by all.
6. In cases of intractable conjunctivitis the opinions are not conclusive. "Treat the conjunctivitis," "treat until cured." "treat until the infection disappears" is good advice and is followed by all of us, but suppose that the trouble is not cured, that in spite of all treatment infection persists—what then? If, as Dr. Casey A. Wood says, "A test bandage should give negative results for at least two days before extraction is thought of," many of these cases can never be operated on, and the patient is doomed to blindness, for Dr. Chandler asserts that 90 per cent. of his cases show staphylococci before operation, and Weeks says, "Operate only after all discharge has ceased." Experience shows that in certain cases it is impossible to get a sterile culture from the conjunctival sac.

The various procedures recommended in these cases are conjunctival flap dissected up and brought over the corneal wound, stitching the flap, application of a solution of silver nitrate to conjunctiva before operating, open dressings, daily use of protargol, subconjunctival extraction,[2] constant application of cold without bandages, iodoform dusted into the eye, preliminary iridectomy; many, however, fail to state that they have successfully treated such cases by these methods and their argument is *a priori* and not fortified by experience.

The advisability of the operation of reclination may certainly then be considered:

1. On the aged and infirm or those suffering from exhaustive diseases.
2. When there is non-curable infection of the conjunctiva or lacrimal sac.
3. When one eye has been lost by suppuration or hemorrhage following operation and a similar result is feared.
4. In obstinate bronchitis.

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[14] Canton: Tr. Path. Soc., London, 1850, iii, p. 182.
[15] Bourgeois: Die Depression des Staares. Franz. Ophth. Gesellsch., 1902.
[16] Meyer: Dis. of the Eye, 1887.
[17] Berry: Dis. of the Eye, 1887.
[18] De Schweinitz: Dis. of the Eye, 1892.
[19] Juler: Ophth. Science and Pract., 1893.
[20] Noyes: Dis. of the Eye, 1890.
[21] Fox: Dis. of the Eye, 1904. Indian Med. Gazette, June, 1901

5. In fluid vitreous with tremulous iris.
6. In the insane or unmanageable patient.
7. In the very deaf where the assistance of the patient can not be secured.

## REPORT OF A CASE.

*History.—Mr. A., American, 64, first came under observation* in September, 1901, with the following history: For some years he had suffered from diabetes and at intervals, under strict diet, had been fairly well, but most of the time his health was poor and his condition was aggravated by certain ailments which dated from an extended army service and the occasional immoderate use of alcoholic stimulants. He is a heavy smoker. Family history is negative.

Vision began to fail from incipient cataract about three years ago and progressed till it was difficult for him to get about alone and, as the changes were mainly nuclear, he was advised to have a preliminary iridectomy made on the right eye in hopes that more speedy maturation would occur. Before doing this, however, for nearly a year he was under the care of a physician in Philadelphia, who attempted to absorb the cataract by massage. Failing in this, he was again advised to have an iridectomy and this was done in the summer of 1901. Infection of the wound very promptly followed in twenty-four hours and a few days later the eye was removed.

When first seen the stump was healed, but there was a mucopurulent secretion which kept the socket continually moist, glued the lids together and caused an excoriated condition of the lids, most noticeable at the inner canthus. The left eye presented an immature nuclear cataract with vision under a normal pupil reduced to fingers, but increased somewhat with a dilated pupil. There was the same sticky secretion as in the other eye and the edges of the lids and cutaneous borders were red, excoriated and moist. There was no dacryocystitis, although there had been a moderate rhinitis for some years.

With the occasional use of a weak solution of scopolamin hydrobromate and the frequent cleansing of the eyes and lids with a solution of boric acid he got along comfortably until December of that year, when the rapid maturation of the lens so impaired the vision that the question of operation became urgent.

*Bacteriologic Examination.*—Dec. 13, 1901, by Dr. F. T. Fulton, pathologist of the Rhode Island Hospital, with the following result:

Two smears were made from the left eye and one from the right orbit, and cultures from both the left eye, the right orbit and from the nose.

Right Eye: Smear showed fairly numerous pus cells, a few large desquamated epithelial cells and an occasional bacillus which stained by Gram's method. Cultures contained a few colonies of white staphylococci and a few colonies of *Staphylococcus pyogenes aureus.* There was also in the culture a contamination with the bacillus subtilis.

Left Eye: Smear showed a few pus cells and desquamated epithelial cells and a few cocci. Culture showed numerous yellowish colonies of staphylococci, a few white colonies of staphylococci, and a few colonies of short, deeply staining bacilli. The *Staphylococcus pyogenes aureus* was in this culture, the *chief organism.*

Nose: Culture showed a few white colonies of staphylococci and fewer colonies of staphylococcus aureus.

It was decided to make a test of the behavior of the eye under the treatment to which it would be subjected after operation and, on December 28, he entered the hospital. The left lids were brushed with a 2 per cent. solution of silver nitrate and for two days they were treated with a 50 per cent. solution of protargol four times a day, with frequent washings of boric acid in solution. On the third day. after a thorough cleansing of the brows, skin and lids with a 1 to 1.000 bichlorid, the lids were filled with protargol and a sterile dressing loosely applied. There was during this time a marked increase in the sugar eliminated, reaching about 5 per cent. with 3,800 c.c. of urine. Each time the eye was dressed it was flushed freely with sterile salt solution and the lids filled with protargol. On January 3 a second examination was made.

*Report of the Pathologist.*—Cultures taken Jan. 3, 1902. This time there were taken smears and cultures from the skin near the inner canthus of the left eye, from the conjunctiva of the lower lid of the left eye, from the secretion on the external surface of the eyelid of the left eye, and a smear and culture from the right eye.

Right Eye: Smear showed only rarely a pus cell. No organisms found. Culture showed no colonies. In the water of condensation, however, there grew a few staphylococci which resembled the staphylococci epidermidis albus.

Left Eye: Smears from the inner canthus showed no pus but a slight amount of granular material. Cultures showed no growth. Smear from the secretion on the external surface of the lid showed a few desquamated cells and a little mucus. In the culture about fifty colonies of the *Staphylococcus pyogenes albus* developed. Smears from the conjunctiva showed a very few cells and a small amount of granular material. Culture showed one colony of the *Staphylococcus pyogenes albus.* These organisms from the lid and conjunctiva liquefied gelatin more rapidly than the one from the right eye.

Dr. Fulton adds: "The most striking thing in comparison with the former examination is the reduction in the number of bacteria in general and the entire absence of the *Staphylococcus pyogenes aureus* on January 4 after the systematic and persistent use of protargol in treatment."

This experiment seemed to prove that protargol would control the growth of staphylococci, but the effect of the salt in such strength on a fresh corneal wound was uncertain. As soon as the patient was allowed exercise and without any change in his diet his urine dropped to 800 c.c. and the sugar to less than 1 per cent. For a month protargol was used daily with careful attention to cleanliness and frequent douching of the nose, and on January 22 a third examination was made.

*Cultures Taken Jan. 22, 1902.*—This time cultures were made from the left conjunctiva, from the external surface of the lid, from the right eye and from the right cheek.

Right Eye: Smear showed no pus and a few deeply staining bacilli. Culture showed three kinds of colonies. 1. About one-half dozen colonies of *Staphylococcus pyogenes aureus* which rapidly liquefied gelatin. 2. About twenty-five smaller white colonies of a slowly liquefying staphylococcus albus, apparently the epidermis. 3. About fifty colonies of large, irregular, curved, deep staining bacilli.

Cultures from the right cheek showed the fewest colonies of any of the cultures taken. Two kinds. 1. Three yellow colonies of staphylococci. 2. Three small white colonies.

Left Eye: Smears from the conjunctiva contained no pus but a few short, deeply staining bacilli. Culture contained three kinds of colonies. 1. About thirty to forty yellowish colonies, similar to those in the right eye. 2. About equal number of smaller white colonies resembling the white colonies in the right eye. 3. One hundred to two hundred very minute colonies of short, irregular, curved, deeply staining bacilli.

Skin Near Angle: Smears showed a few pus cells and a few cocci. Cultures showed large numbers of closely packed, golden yellowish colonies of *Staphylococcus pyogenes aureus.* Culture also showed a very few of the short bacilli.

The result was disappointing particularly as the frequent washing of the eyes seemed to increase the eczematous condition of the lids and they were at all times moist. The protargol also produced a certain amount of argyrosis. For several weeks then the lids were kept filled with a 50 per cent. ointment of iodoform, the punctum was dilated and syringed freely and then powdered iodoform was dusted inside the lids twice a day, with careful diet and attention to exercise, until his general condition was somewhat improved and then a fourth examination was made. The continued use of the iodoform, however, irritated the cornea and there was a small spot of ulceration which healed rapidly on the cessation of the use of the powder.

*Cultures Taken April 22, 1902.*—Cultures were taken from the skin of the lower lid of the left eye, from the conjunctiva and from the left side of the nose, also from the right orbit, with the following result:

Right Eye: Smear contained a few pus cells. Culture contained a few yellowish colonies of staphylococci and a number of white colonies of staphylococci. Cultures also contained a few curved deeply staining bacilli.

Left Eye: Smears from the skin of the left eye showed a few pus cells, a few desquamated epithelial cells, and some mucus. Culture showed about fifty whitish colonies of staphylococci and one or two yellow colonies of the same. Smear from the conjunctiva showed fewer pus cells than on the skin surface of the lid. Culture showed two white and five yellowish colonies of staphylococci. These did not liquefy gelatin.

Nose: Smear showed no pus cells. Culture showed about thirty colonies, some yellow, others white. These were staphylococci.

*Cultures Taken April 28, 1902.*—Cultures were taken from the conjunctiva, skin on the left lid and from the left side of the nose.

Left Eye: Smears from the skin and from the conjunctiva showed no pus cells or cellular elements, nor any bacteria. Culture from the conjunctiva showed about a dozen colonies of white and about a dozen yellow colonies of staphylococci. Culture from the skin showed about fifty colonies of *Staphylococcus pyogenes albus.*

Nose: Smear showed a slight amount of mucus and a few mononuclear cells, but no pus nor bacteria. Culture showed a number of colonies of the staphylococcus albus and a few small colonies of deeply staining, curved bacilli.

*Consultation.*—I did not feel like assuming the responsibility of an operation and at my request the advice of an eminent surgeon in New York was sought. He advised against operation, but thought that the conjunctivitis could be cured and then the operation would be safe, and suggested the same remedies that had been faithfully used for three months, so the journey was extended to Philadelphia and the case laid before a surgeon of great experience, who thought that the condition would probably not further improve by treatment, but that by an iridectomy, a conjunctival flap and an open dressing there was a chance of success. He did not, however, accede to my request to assume the responsibility of the case by operating himself.

During the summer and fall the patient kept up the cleansing process daily, with the constant use of various astringent collyria, lived out of doors and tried to improve his general condition in every possible way, and in December, 1902, another test was made with the same result, a culture from the left eye showing a hundred colonies of the staphylococus aureus. Influenced largely by an article by Dr. George F. Suker,[22] I then proposed the operation of reclination and, after due consideration and with a full knowledge of the possible outcome, the patient consented and the operation was done on June 1, 1903.

*Operation.*—With rigid adherence to the principles of asepsis, with a dilated pupil and the patient in a sitting position, the couching needle was entered 4 mm. from the corneal margin and carried close to the iris till its point engaged the lens at its upper fourth and then by a rotation of the handle, keeping it always in the same axis, the curved point was made to press the lens backward and downward. It was my aim to rupture the capsule above and allow the lens to fall backward like a hinge, but after a few moments of steady pressure it tore in a vertical slit and the lens, turning on a vertical axis, slipped through the rent and disappeared. There was immediate restoration of vision without pain or discomfort, save from the sudden glare of light. The iris immediately contracted to about 4 mm. although the anterior chamber was not evacuated, and at no time since then has it been possible to obtain a maximum dilatation.

In hopes that some shreds of capsule might become attached and, if the lens was not allowed to move, would so bind it in its new position that its subsequent rising would be impossible, the patient sat in an armchair with a specially devised headrest, so that he could sleep and yet keep the head erect for about four days. For two days ice compresses were applied for fifteen minutes in each hour. There was not the slightest sign of inflammatory action and I was able at all times to see the edge of the lens, but after the first twenty-four hours I could detect no motion imparted to it by moderate movements of the eye, although there was a tremulous iris.

*Result.*—The patient was kept quiet for three weeks and then allowed to walk about with much improved vision, but the rent in the posterior capsule closed quickly and presented an opaque membrane through which clear vision was impossible. From July 1, with a +8.0 lens, the patient went about the streets with comparative ease, was able to recognize friends and transact his business and, save on one occasion after indiscretion in diet, had no trouble with the eye. On September 21 the lens could not be seen, the eye was quiet and with +8.0 the vision was approximately 4/50. The first week in November found him actively engaged in the political campaign and the first evidence of an inflammatory action was noticed the day after election when, by his own story, he smoked twenty cigars. This subsided in twenty-four hours with ice and atropin and, on November 24, I divided the posterior capsule without any resulting inflammatory action, and, on December 3, the vision with +11.0 (+) 1.50 C. 90° was improved to 0.4.

Late in December he went to Washington to attend a meeting of the National Republican Committee and while there began to have pain in the eye. For about two months after his return there was an active iridocyclitis with great injection and pain, but at no time was the cornea involved or pupil occluded and the field was good. The disease was combated by every means in our power, but the greatest relief was experienced from leeches and mercurial inunction. Atropin, at times combined with dionin and cocain, was used all the while, but the pain was excessive and the general condition soon began to show the effect of it, there was a rapid increase in the sugar which later yielded to a stricter diet, but at the expense of physical weakness.

The pain was seldom located in the eye, but seemed purely neuralgic in character and was either at the ala of the nose, over the left nasal bone or at the vertex and would be excited instantly by a loud noise, turning in bed, the pressure of a pillow, the fatigue of talking or even listening to conversation, and presented many of the characteristics of facial tic. The eye would be comparatively white, it could be opened without pain, vision was good enough to allow him to get about the room and he would be feeling well when suddenly the pain would attack him, the tears would begin to flow and the eye would immediately become suffused and reddened; after an attack lasting from a few minutes to a few hours, the eye would again become dry and the redness subside.

Repeated attacks, however, during a period of two months seriously menaced his strength and the eye was not looking well, although the pupil was still clear and, when free from pain, the vision was fairly good. That this pain was not due to an active inflammation in the eye itself is proved by the fact that for days at a time there would be no injection, the sclera would be white and there would be neither photophobia nor lacrymation till an attack of pain would immediately suffuse the eye, and because repeatedly the application of cocain to the nose or a brisk counter-irritant over the forehead would at times stop the pain and almost immediately the redness in the eye would disappear. His general condition is now slowly improving, the attacks of pain are less frequent and not so severe and for quite a long time—some weeks—he has had no trouble with the eye. The vision is not good, but enables him to get about and to distinguish objects in the room and, if allowed to use his glasses, would certainly be much improved. If the diabetic neuralgia can be controlled I believe that he will ultimately regain some of the acuity of vision he had last fall and six months after the operation.

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[22] Suker: Am. Jour. Ophth., June, 1902.

My reasons for doing a reclination of the lens in this case instead of an extraction are, briefly:

1. The first eye was lost by suppuration after an iridectomy, an unusual occurrence.

2. The existence of a chronic intractable conjunctivitis with mucopurulent discharge and with the tarsal edges continually excoriated by reason of its irritating properties promised a probable infection.

3. The existence of diabetes and consequent impairment of nutrition.

4. A disinclination on my part to do an extraction with the probability of speedy and complete blindness and an unwillingness to experiment on a patient whose prominence in my city and state rendered my action subject to public comment and criticism.

The result of the operation, while in a measure unfortunate, had yet a certain degree of success and satisfies me that the operation can be safely done; that it affords a means of restoring sight where extraction is dangerous and that the dangers attributed to it by so many surgeons are the dangers to be expected and feared, but which do not necessarily follow. I believe that reclination should not be relegated to complete oblivion, but that in a certain class of cases like those enumerated by Power and Suker it is not only justifiable, but advisable.

## REPLIES OF THOSE WHO HAVE DONE THE OPERATION.

DR. E. E. HOLT, PORTLAND, ME.—I have performed one operation by this method, using it because the other eye was lost by hemorrhage after operation. In the attempt to couch, the lens was broken up by the knife needle. It was absorbed in six weeks. The ultimate vision was 0.6. I believe the operation justifiable in such a case as that cited. This experience would lead me to do the operation by breaking up the lens a little, rather than to displace it bodily, as there was no swelling of the lens substance. It is impossible for me to tell on how many cases of infection by the staphylococcus or streptococcus I have performed linear extraction, as I have not had cultures of many, but in some cases it has been impossible to free the conjunctival sac from mucopurulent matter, and I have operated, after operation filling sac full of sterilized iodoform. The results have been good. I recall one case with primary suppuration. The sac was syringed with 1 per cent. carbolic acid solution, and carbolic acid, 25 per cent., was applied to edges of corneal flap. The eye was saved with a vision of 0.5.

DR. HASKET DERBY, BOSTON—I performed the operation once in a case of insanity. The case promised well, but was lost sight of, and the ultimate result is unknown. I think the operation distinctly justifiable under the conditions noted in your case. It is impossible to tell on how many cases of infection I have done linear extraction, as my hospital career ended before bacteriology had assumed prominence.

DR. JOHN H. THOMPSON, KANSAS CITY, MO.—I performed reclination once on a very old man with diabetes. There was considerable reaction for six days, but the ultimate result was good. The operation should be done more often than it is. Notwithstanding published statistics, very many patients lose their eyes from traumatic inflammation. In your case cited, I am inclined to think dislocation offers a better chance. I have done ten or more linear extractions on similar cases, with 70 per cent. good results. Suppurating cases have come unexpectedly, and those thought to be dangerous have come out all right.

DR. J. L. THOMPSON, INDIANAPOLIS—I have had possibly a dozen cases, but only performed in case of fluid vitreous. The first was in a woman of 45 years, with lamellar cataract from infancy. I did a preliminary iridectomy, intending extraction, but found fluid vitreous. The eye was bandaged and the lens couched six weeks later. A few months later I did the same operation on the other eye. Both did well. Five years ago the vision was 20/40. I should not care to do the operation without preliminary iridectomy (small) as safeguard against iritis and closure of pupil. I consider the operation justifiable, but not in the case cited by you, as there would be danger of suppuration in doing the iridectomy. In such a case I should obliterate the canaliculi and, if possible, the sac before doing any operation.

DR. H. BERT ELLIS, LOS ANGELES, CAL.—I performed couching in one case because of chronic dacryocystitis. The result was very good for a year, and then vision diminished to perception of light and then to degeneration of vitreous. I consider the operation occasionally justifiable, but ordinarily not so because of the liability of setting up vitreous trouble. In your case I should treat the dacryocystitis and chronic conjunctivitis for some months before operating. I have done two linear extractions on similar cases with excellent results, and have another now pending.

DR. C. M. HOBBY, IOWA CITY, IOWA—My personal experience in couching is of two kinds—couching done by others, and the little done by myself. I have performed the operation myself but once, in a patient of 92, with arteriosclerosis and overripe cataract. I was then doing cataract operations under ether anesthesia, it being before the days of cocain, and it was considered to be dangerous in this case to attempt general anesthesia. The result of the operation was good, but since cocain anesthesia I have not been able to reconcile the advantages of reclination in rapidity and ease to the added risks, and have therefore always made extraction. My one successful reclination taught me that there was, however, vastly more skill required than in extraction, and my fortunate result was a piece of luck. Dr. J. C. Hughes of Keokuk, Iowa, probably made nearly a thousand reclinations prior to 1880. Dr. Hughes was a skillful surgeon of the older generation of the day, and couched cataracts, as he has made lithotomies, fearlessly, and with results that would astonish our present surgical mentors. I never saw him do the operation, and I only met the bad results and occasional good ones seeking duplication from his last two hundred cases, but I saw enough of the results to recognize that it can give prolonged good results, and that the occurrence of sympathetic ophthalmia in the other eye or secondary glaucoma in the eye operated on is by no means necessary.

In the case made the basis of your question, I am inclined to think the operation not only justifiable, but the best possible, if the infective danger can not be controlled primarily. I believe that most of these cases, whether of conjunctivitis or infective dacryocystitis, can be controlled, and if the infective source of danger can be eliminated it is the best course, and I have succeeded several times under both conditions. If, however, there is doubtful possibility of control of infection we certainly can reduce the infective danger of a needle wound to a minimum. I have done probably fifty cases of linear extraction with about 60 per cent. good results. This included prolonged treatment, closing of the canaliculus, leaving eye open after operation, and cauterizing wound with crystals of carbolic acid.

DR. HERMAN KNAPP, NEW YORK—I performed the operation three or four times in 1860-3 because of suppuration in the other eye. The operations were failures by iridocyclitis and glaucoma. I do not consider it justifiable now. In your case I should cure the suppuration or extirpate sac. I never did a linear extraction in total cataracts except in children.

## REPLIES OF THOSE WHO HAVE NOT DONE THE OPERATION, BUT WHO BELIEVE IT IS AT TIMES JUSTIFIABLE.

DR. H. GIFFORD, OMAHA—I consider it possibly justifiable in cases where one eye has been lost by hemorrhage and there is decided evidence of arteriosclerosis. In case of your patient, I should get the conjunctiva in the best possible condition and then do extraction, protecting the wound by a conjunctival flap previously dissected up and after the extraction brought down to cover at least one-third of the cornea. I consider that there is danger of glaucoma in couching, and have done extraction in two cases where the other eye had been lost by retinal hemorrhage, both with good results.

DR. H. B. CHANDLER, BOSTON—I have never seen a case, but can conceive of one, where the operation was justifiable. There are, however, the dangers of replacement of the lens, iridochoroiditis, glaucoma and hyalitis to be considered. In dacryocystitis I should remove the sac or operate after treating it, doing simple extraction with conjunctival flap, and stitch and buttonhole iris to prevent prolapse. Ninety per cent. of my cataract extractions show staphylococci before operation. I have done linear extraction in perhaps ten or twelve soft cataracts, with always satisfactory results.

DR. N. M. BLACK, MILWAUKEE, WIS.—I think it justifiable in the very old and weak, the insane, in the second eye where the first was lost by fluid vitreous and there is reason to believe this eye in the same condition, and occasionally in conditions as stated by you. In dacryocystitis I should tie off the punctum before operation and leave until wound healed, as Buller and Wood do; in purulent conjunctivitis of intractable nature, the method described by Ellett of covering cornea and corneal wound with the bulbar conjunctiva until the corneal wound is healed. I have done no linear extractions for such cases, but have seen Dr. C. A. Wood perform it in a case of dacryocystitis in which he ligated the puncti with perfect result.

DR. J. W. CHAMBERLIN, ST. PAUL, MINN.—It would be justifiable as a last resort when treatment of other conditions failed. I have operated on three or four cases where the patient was diabetic or had chronic inflammation of conjunctiva. One failure, one good result, one fair.

DR. E. JACKSON, DENVER—I should think it justifiable when the general health of the patient was so poor that the needed restrictions after extraction would cause serious risk, or where the prospect of early death makes later dangers from couching unimportant. In the case cited, I should improve the lacrimal and conjunctival condition as much as possible, perhaps ligate the canaliculi, make a thorough application of silver nitrate solution to conjunctiva for from twenty-four to thirty-six hours before operating, wash the conjunctiva very thoroughly with 1/1,000 trikresol solution, and do extraction with a section of the limbus and large conjunctival flap, close wound quickly and wash conjunctiva in twenty four hours.

DR. A. E. BULSON, FT. WAYNE, IND.—I should not hesitate to do the operation under the conditions mentioned. I think the operation has a limited field of usefulness even now, as I have had occasion to see several cases where the same effect has been brought about by trauma as would be produced by couching. One case obtained with lenses 20/30 vision, and has to my certain knowledge retained it for five years. In a case of dacryocystitis I should eradicate the sac and in conjunctivitis treat it until under control, or decline to operate.

Dr. A. Alt, St. Louis—I consider the operation justifiable in exceptional cases—for instance, in patients certain to die soon. I have operated several times where one eye has been lost by infection, with successful results.

Dr. E. C. Ellett, Memphis, Tenn.—I might couch, particularly in old and feeble persons, if the treatment or plan following could not be carried out, in such a case as you outline. In the case of an otherwise healthy person, if the infection was due to the tear sac, I should tie off the canaliculi before extraction. If the discharge was from the conjunctiva I should raise the conjunctiva all around the cornea, extract, sew the conjunctiva over the cornea, letting it remain five days. I have operated twice with perfect success in cases of purulent conjunctivitis (streptococcus and pneumococcus).

Dr. A. R. Baker, Cleveland, Ohio—Yes, justifiable in aged persons when circumstances are such that preliminary treatment could not be given. I have suggested the procedure in choroidal hemorrhage, but never tried it. In the case in question I formerly would have injected sac daily with nitrate of silver, but have recently used protargol until the purulent secretion disappears. I should extract with iridectomy and conjunctival flap, and bandage only from twelve to twenty-four hours, continuing the daily injections of protargol. I have operated on from fifteen to twenty cases of dacryocystitis, and all recovered without infection. Several of the cases were those declined by confrères. I once lost both eyes in an old lady with general anasarca, dilated heart and albumin in urine, but with no local or general infection that I could discover.

Dr. O. F. Wadsworth, Boston—The operation might possibly be justifiable if circumstances absolutely prevent preliminary treatment and the patient understands the doubtful result. I should treat such cases to eliminate the cause. This should be possible in conjunctivitis. If dacryocystitis, the lacrimal sac should be extirpated. I have done very few linear extractions in such cases, none since cocci were recognized. I recall one earlier treated successfully by daily syringing through nose before and after operation.

Dr. W. K. Rogers, Columbus, Ohio—It might be done in some cases of insanity, and possible extreme senility. The loss of one eye by suppuration, however, would not justify me in advising couching, as the condition of infection is to be remedied. I have had several cases of both kinds, but have no cause to complain of results.

Dr. A. B. Hale, Chicago—The operation may be justifiable. In infective cases I should extract through corneal wound and should be tempted to try Czermak's lately devised subconjunctival extraction. I have had three cases, with two eyes saved and one lost.

Dr. N. L. Wilson, Elizabeth, N. J.—It might be used as a last resort if the dacryocystitis or conjunctivitis could not be controlled. I should try closing the punctum, paint the conjunctiva with silver nitrate for a week or two, scrub conjunctiva thoroughly before extraction. I have had three cases, with two eyes saved and one lost.

Dr. Myles Standish, Boston—I can conceive of cases in very aged people where I might consider the operation of couching.

Dr. Henry Gradle, Chicago—I should consider it justifiable only when patient's condition (imbecility, etc.) makes the success of extraction highly improbable.

Dr. H. V Würdemann, Milwaukee, Wis.—Yes, justifiable sometimes in the insane or very old or feeble, whose expectation of life is short. I think the following procedures are sufficient to successfully combat conjunctival and lacrimal suppuration: Cure of nasal, conjunctival and lacrimal disease, including operations on duct, excision of sac, argyrol and silver compounds, occlusion of canaliculi by suture as advocated by Dr. Casey Wood, peritomy and covering cornea temporarily with conjunctiva, as advocated by Dr. Ellett. I have had three cases where the other eye was lost by operation, and about a dozen where the other eye was hopelessly blind from trauma or disease. In 1.000 cases, three have been lost by suppuration, in one only where infection already existed, and two by traumatisms inflicted by patients after operation.

Dr. J. C. McReynolds, Dallas, Texas—The operation is possibly justifiable, but not preferable. If it should prove impossible to remove the focus of infection either by treatment of the diseased structures or by excluding them from communication with the field of operation, I should then proceed in the following way: 1. Make your incision quite peripheral, so as to pass through tissues well supplied with blood vessels, and hence well nourished. 2. Make a conjunctival flap which will quickly unite with the opposing denuded surface, thus preventing the infection of the interior of the globe. 3. Instead of closing the eyes for a few days with a bandage, as in ordinary cases, treat the eye very carefully as a wound of the cornea or sclera by frequent irrigations with mild antiseptics and by constant applications of cold pieces of gauze or linen after the manner of treating a purulent conjunctivitis. I have repeatedly treated such cases without a bandage, and with very satisfactory results.

Dr. James M. Ball, St. Louis—It is justifiable in those near death who wish to see again. In the case mentioned, I should treat conjunctivitis or excise lacrimal sac, and then do extraction with iridectomy. I do not believe in linear extraction.

Dr. S. D. Risley, Philadelphia—It might be done in very aged people, blind in both eyes from cataract, who had not long to live and when it would be dangerous to confine them to bed too long. I have seen, however, many cases where the lens has been dislocated by accident or couching with chronic or trophic choroiditis and tension. In case in question, I should treat conjunctivitis and tear passages for some time, sterilize as thoroughly as possible before operation, and extract lens with a large conjunctival flap, dust iodoform in retrotarsal fold below, and dress eye every twelve hours. I have had many cases where the danger of suppuration was recognized. I recall two where the eye was lost, one from suppurative iritis and the other from slow degenerative changes, probably uveitis. In both cases I felt that there was some relation between the conjunctival state and the ultimate loss of the eye, but these are the only two cases in which I have had to regret having operated on eyes with chronic lacrimal or conjunctival disease.

Dr. H. M. Starkey, Chicago—I have thought for several years that I might try couching, but have had no case in which it was required. I believe I should try it in your case mentioned. There comes to my mind only one case before attention was given to bacteriology in which linear extraction was done, a case of purulent dacryocystitis, in which the eye was lost.

Dr. Lucien Howe, Buffalo, N. Y.—The operation is probably justifiable. In cases of infection I should cure or improve the dacryocystitis or ligate the canaliculi, and then extract.

Dr. Hiram Woods, Baltimore—Yes, it is justifiable if such conditions exist as stated, and it is a question of blindness or taking what is apparently the smallest risk. I should try to get rid of the infection before operating, if possible. Couching should be considered if this seemed impossible. I have lost five eyes after cataract extraction by suppuration in certainly over two hundred extractions.

Dr. J. A. Lippincott, Pittsburg, Pa.—I think the operation of couching might be justifiable on the second eye after loss of the first from choroidal hemorrhage. If persistent treatment failed to eliminate the danger of infection, I should seal the canaliculi and trust to White's ointment of the bichlorid. I should not dislocate. The number of times I have operated on the second eye after the first was lost from suppuration either in my own hands or those of one of my colleagues is very considerable, and the results quite satisfactory, but in all such cases I have spent months in preparatory treatment, directed to the tear ducts and to the nasal cavities.

## THOSE WHO DO NOT BELIEVE THE OPERATION EVER JUSTIFIABLE.

Dr. F. C. Hotz, Chicago—I do not consider it justifiable, as clinical experience of the past has shown that sooner or later a slow cyclitis develops and causes blindness. I should extirpate the tear sac or treat the conjunctiva with protargol until the coccus infection is removed, and bandage the eye for only twenty-four hours to get the wound closed, then use only a protecting shield. I can not tell just how many cases I have had, but there has resulted no wound infection.

Dr. T. Y. Sutphen, Newark, N. J.—It seems not justifiable, for, even if no suppuration follows, the result is far worse than after extraction, and I believe the danger of infection is just as great if not greater in puncture than in clean cut. The loss of the other eye after extraction would not deter me from making an operation on the other, but only after every effort to remedy the dacryocystitis or conjunctivitis, and the eye should be dressed more frequently after operation. I have operated on such cases, but do not remember losing an eye as a result.

Dr. Charles S. Bull, New York—No, an opaque lens displaced in the vitreous is a foreign body, presses on the ciliary processes and may give rise to a cyclitis and loss of eye. If the infection is from conjunctivitis, treat until cured. If the lacrimal sac is inflamed, divide the canaliculi, open sac, cauterize and treat by injection until cured. If chronic dacryocystitis, dissect out sac.

Dr. William C. Posey, Philadelphia—It is unwarranted in the light of present knowledge, the dislocated lens giving rise to glaucoma or iridocyclitis. Remove the sac or obliterate the canaliculi before operating.

Dr. Casey A. Wood, Chicago—I have never had a case where I considered it justifiable, owing to the certainty that sooner or later intraocular changes, especially secondary glaucoma, would set in. Other procedures are more likely to obtain useful vision. Where the infection is lacrimal or nasolacrimal, the lesions should be treated with the purpose of curing or relieving them. Then resort to the device advocated by Buller (mentioned in Norris and Oliver[23] by Knapp), which in his experience is effective in shutting off such sources of infection. Where bacterial toxin areas are mainly or entirely situated in the conjunctival sac and lids, these should be carefully looked after, not forgetting the general health, and the most rigid precautions (antiseptic) taken before, during and after operation, which ought to consist of preliminary iridectomy and subsequent extraction. I have done, within the past five years, extractions of this kind with happy results. The Buller method is practically adapted to cases of nasal or lacrimal infection where there is insufficient time allowed for the cure of the original disease. A bacteriologic examination of the conjunctival secretions and a test bandage should give negative results for at least two days before extraction is thought of.

Dr. Adolph Barkan, San Francisco—In thirty-two years I have never couched a cataract, and do not consider it justifiable. I have of late years made the regular extraction in such cases, guarding against wound infection by leaving the eye open after operation and keeping inner angle of eye well covered with iodoform xeroform after some treatment of the lacrimal duct. In five or six such operations no eye has been lost. The *modus operandi* is: Attending to lacrimal tract, probes, astringent injections (no closure of canal, which, in my opinion, produces draining of discharge under bandage). Even if an incomplete result is achieved in making lacrimal channel entirely permeable and aseptic, which is often the case, extract, do not bandage at all, patient keeping his eye closed, but winking occasionally; throw a good deal of xeroform or iodoform into inner angle, repeating application every two to three hours. I nearly always make a good conjunctival flap, and generally do simple extraction. I am not sure that in these cases the duct has always contained streptococci or staphylococci, but often.

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[23] Norris and Oliver: System of Eye Dis., vol. iii, p. 794.

Dr. G. Melville Black, Denver—No, couching is never permanent in results, even if immediate danger is avoided. Extirpation of the lacrimal sac or other means can be used to make the extraction safe. I should do regular extraction, sliding conjunctiva over cornea, after method of Ellett.

Dr. George H. Price, Nashville, Tenn.—No, it is not justifiable because the lens, acting as a foreign body, sets up inflammatory trouble which *in all probability will result in ultimate loss of eye.* The inflammatory condition should be treated until the infection is relieved, which should be accomplished in a reasonable time, and even if it should require considerable waiting it would, in my opinion, be the best line of treatment. I have had cases of not severe conjunctivitis in which results were good.

Dr. Oscar Dodd, Chicago—Less dangerous means of getting rid of the lens can be used, as a large number of such operations terminate with loss of sight. Treat eye carefully until infection is gone. If necessary, eliminate lacrimal sac by cauterizing punctum or ligating as advised by Buller. Extract after preliminary iridectomy. I have never done linear extraction except in young people with a large nucleus to lens.

Dr. G. C. Savage, Nashville, Tenn.—No, the lens will act as a foreign body sooner or later. In infective cases treat and cure, if possible, the purulent inflammation and then extract. I have undertaken three or four of such cases with much dread, but successfully.

Dr. Stephen C. Ayres, Cincinnati—I do not consider it justifiable on account of danger from glaucoma. The chances of success are better with extraction after obliterating the tear sac, and, if necessary, removing the lacrimal gland.

Dr. Stephen O. Richey, Washington, D. C.—I think not, as the lens remains as a foreign body in the eye, causing inflammatory action and not remaining anywhere long enough to become encapsulated. Conjunctivitis and dacryocystitis should be absolutely cured before the bulb is opened. Any other procedure invites misfortune.

Dr. M. W. Zimmerman, Philadelphia—No, because the lens in the vitreous is a foreign body and a constant and greater danger than infection, which, at its worst, lasts but a few days. I should open and drain or seal the lacrimal nasal duct, treat the conjunctivitis, even use corneal suture and iodoform at time of operation. I have had several such cases. The two losses from infection of the wound were not the cases which before operation looked most dangerous.

Dr. E. Swasey, Worcester, Mass.—On general principles, no, as other and safer plans can be adopted to free the conjunctival sac from infectious secretions. Close the tear duct by suture and later, if necessary, remove the lacrimal gland. I had one case, an old man, in which a dirty lacrimal discharge, which had not been found at time of operation, developed under the bandage. The eye was lost by infection. I should first remove the blind eye before operating on the remaining one, as I feel sure that I lost one case from sympathetic inflammation by not doing so.

Dr. H. W. Ring, New Haven, Conn.—There are other methods more justifiable. By tying the punctum, dacryocystitis need have no terrors for a few days while the wound is firmly uniting. By closing the wound after extraction with conjunctiva until firm union occurs, the conjunctivitis is not likely to cause infection.

Dr. John E. Weeks, New York—No, there are other methods which are safer. In infectious dacryocystitis I should advise excision of sac and in infectious conjunctivitis the correction of it by appropriate treatment. Operation after all discharge has ceased. I have operated in four cases of dacryocystitis after treatment, but without excision of the sac, and with satisfactory results. In one case without treatment the eye was lost. I have had good results in a number of cases of chronic conjunctivitis.

Dr. James Thorington, Philadelphia—I do not believe it justifiable because of the danger of glaucoma, retinitis and degeneration of the vitreous. In a case of dacryocystitis, after preliminary treatment and thorough antisepsis I should operate with large conjunctival flap when making corneal section, dressing eye once or twice a day after operation. I have had three such cases, and good results in all. In none of these had the other eye been operated on.

Dr. Thomas R. Pooley, New York—No, the operation is more dangerous than the risk of infection of the wound. I should obliterate or extirpate the sac if dacryocystitis were present; if not, do extraction with iridectomy under rigid antisepsis. I have done successful operations in six cases of dacryocystitis after obliteration and extirpation of the sac.

Dr. Leartus Connor, Detroit—No, because, 1, the eye is endangered by a foreign body, lens, in vitreous; 2, dacryocystitis and conjunctivitis can be cured and extraction rendered safe; 3, the eye would be endangered by the couching needle if the infection was in the conjunctival sac. Cure the conjunctivitis and dacryocystitis, and then extract lens. If haste was imperative, I might venture to occlude the canaliculi, remove the infection from the conjunctival sac and then extract lens. I recall five cases with good results.

Dr. J. Elliot Colburn, Chicago—No, the results of accidental luxation in patients over 40 years of age in my experience are uniformly unfavorable and terminate in intraocular disease. In case mentioned, remove the sac and treat conjunctivitis. I have four similar cases, one with poor vision, 20/80; two fair, 20/50, and one good, 20/20—1.

Dr. B. Bettmann, Chicago.—It is not justifiable in any circumstances. I should advise extraction and closure of lacrimal duct with cautery. I have had three cases, with good results.

Dr. J. M. Ray, Louisville, Ky.—No, because dislocated lens will sooner or later set up changes that are liable to cause destruction of the eye and call for enucleation. Dislocated lenses from injury show this. In dacryocystitis, excise sac and extract lens. In chronic conjunctivitis, get conjunctiva in best condition possible, then extract and leave off dressings as soon as possible. I have had several cases of dacryocystitis; one, in which the canaliculi were not obliterated, was lost.

Dr. A. A. Hubbell, Buffalo, N. Y.—No, because any case deserving restoration of sight can be made amenable to extraction by suitable preliminary treatment, both local and general, and because couching leads to blindness sooner or later. I would cure the dacryocystitis or conjunctivitis as completely as possible, then do a preliminary iridectomy, and afterward extraction. I have done eight or ten, and every one successful (flap operation). I never do linear extraction.

Dr. J. Herbert Claiborne, New York—No, not justifiable, since other measures properly carried out give good results. I should advise extirpation of sac and subsequently, after careful treatment of conjunctiva, do linear section.

Dr. Joseph A. White, Richmond, Va.—I have never done the operation, but have watched such cases in the hands of surgeons who preferred operating in this way to sending the case to a specialist, and in nearly every case I could watch to the end the eye has become irritable and lens had to be removed or eye lost. I have, however, seen a few exceptions to this rule. Should not consider it justifiable, as only in exceptional cases will the eye escape ultimate destruction. I should postpone operation until rid of the suppuration from the sac or conjunctiva when suppuration is present. I can not see what influence the loss of one eye from suppuration would have on an operation on the other if this was free from infection. I have operated on a number in which I had to control secretion before operating, but had no bad results in them.

Dr. C. R. Holmes, Cincinnati—I do not believe it justifiable because of the liability to bring about serious disturbances of the eye at a later date, including glaucoma. My treatment of a case of suppuration of the tear sac would be its extirpation, including the lacrimal gland, prior to the operation, and, if purulent discharge from the lids, deferring the operation until such condition has been brought under control. I have extirpated the lacrimal sac in a woman of 84 years before extracting the cataract. I have not at hand the number of linear extractions, but they amount to several hundred, and so far as I can remember now have only lost two by suppuration, which occurred at the same time and in the same room in a dirty hospital, about ten years ago, where the nurse was an uneducated, half blind woman, and the infection was traced directly to a case of necrosis of the tibia which was being handled by the same nurse at the same time.

Dr. Charles F. Clark, Columbus, Ohio—I could not bring myself to endorse such an operation without strong evidence of its safety, I have seen such disastrous results from dislocation of the lens. Should prefer to treat or remove lacrimal sac and later extract.

Dr. George C. Harlan, Philadelphia—The immediate effect may be encouraging, but the ultimate is likely to be disastrous. In one case of a man of 52 years I had an excellent result by frequent careful needling, boring through center of lens. Twelve operations in the course of a year. Vision, 20/30.

Dr. William Cheatham, Louisville, Ky.—I should fear couching, as I think a bead of vitreous would follow needle, rendering infection more certain. I fill the inner canthus with finely powdered iodoform after washing out sac well. Have had three cases and my assistant one. Good results in all, but I have lost cases where I failed to recognize the dacryocystitis.

Dr. B. A. Randall, Philadelphia—I recollect having couched a subluxated lens as a temporary expedient. This failed as a couching, but the lens was thereafter more easily extracted in capsule. Should not consider it justifiable in infection, as puncture is liable to destructive infection as an extraction wound. Treatment should be superficial in the effort to cure the infection before risking any cataract operation. I have several times lost cases where latent infection must have been present, unrevealed by conjunctival or lacrimal discharge.

Dr. Herbert Harlan, Baltimore—Very doubtful if justifiable. I should try to cure the dacryocystitis, and get patient in best possible condition and do the linear extraction. I have done several with good results. I fear the result of extraction more in weak old people than in conjunctivitis or dacryocystitis if in good health.

Dr. C. A. Veasey, Philadelphia—From a clinical study of several cases of complete dislocation of lens into the vitreous, it would seem a very doubtful procedure to place it there intentionally. I should treat for a long period the conjunctiva and lacrimal sac as well as the nares, close lacrimal punctum by cautery or suture if pus persisted, operate with large conjunctival flap and use cold compresses from the start. I have had probably half a dozen such cases.

Dr. W. B. Johnson, Paterson, N. J.—I should prefer not to do it. Have had about 200 cases, and the results were about equal to the usual percentage, vision ranging in acuity up to 95 per cent. or 96 per cent.

Dr. Henry B. Young, Burlington, Iowa—The operation would not be safer than closing punctum (either method) and not closing lids (open treatment). I have had two cases, both lost by suppuration, one twenty years ago and the other ten years ago. On the last, after treatment of the dacryocystitis, I made an iridectomy and got prompt healing without reaction.

Dr. G. E. De Schweinitz, Philadelphia—I had one case where the lens was accidentally dislocated into the vitreous while making capsulotomy in an unruly patient. Six months later V. with +10.0 =20/c, the eye having been perfectly quiet. Subsequently a capsule discission by another surgeon caused iridocyclitis and loss of eye. I do not consider that I have had enough experience on which to base an opinion as to the justifiability of the operation. If dacryocystitis exists, excise the sac and close canaliculi; if conjunctivitis, I should think favorably of closing the wound with a stitch and keeping conjunctival sac filled with iodoform until healed. I have operated many times in marked chronic conjunctivitis or hyperemia, usually after preliminary iridectomy, but can not say what bacteriologic findings were in all cases. In two I knew staphylococci were present. Results were good in all cases.

Dr. Frank C. Todd, Minneapolis—In a case of incurable dacryocystitis extirpate the sac, or, if mild and canaliculi had not been slit, ligature of the canaliculi after cleansing. I operated on one case where the other eye had been lost by sepsis, and on a number of cases of dacryocystitis. The result in the first case was good, and no sepsis in the others.

Dr. Howard F. Hansell, Philadelphia—I have had one case of infective trouble in which the result was good. The lower lid was everted and held by adhesive strips, enabling discharge to drain on cheek. The incision in the corneal limbus healed without interruption.

Dr. H. G. Miller, Providence, R. I.—When a student in Paris, the operation of couching was frequently performed as a routine operation for cataract, especially by the general surgeon, with often good results.

Dr. P. A. Callan, New York—I never had a case where couching was considered. I should destroy the sac, extirpate or tie the canaliculi, and treat the conjunctivitis, make corneal incision or Graefe modified linear. The former gives excellent results in suitable cases.

Dr. D. Roy, Atlanta, Ga.—I have no case where the operation was considered. Obliterate the sac if necessary, give preliminary treatment, do preliminary iridectomy and later removal. Have had no case of just the character described.

Drs. William H. Carmalt, New Haven, Conn.; J. B. Emerson, New York; Frank Allport, Chicago; Harry Friedenwald, Baltimore; J. A. Stucky, Lexington, Ky.; B. Joy Jeffries, Boston, Mass., stated that they had not done the operation, but did not express opinion as to advisability.[24]

## DISCUSSION.

Dr. L. Webster Fox, Philadelphia, said that he can not find it consistent with his teaching and practice to accept Dr. Rogers' views regarding reclination. Dr. Rogers, however, takes an impregnable position in stating that there are some conditions in which the operation is justifiable, and this stand is applicable to all ocular operations when we consider individual skill and experience as a large element to the success of any procedure. Dr. Fox rejects the operation of reclination under all circumstances, believing that the dangers of iritis, iridocyclitis and glaucoma more than counterbalance its better features. The various manifestations following the operation in Dr. Rogers' case would be sufficient, he thinks, to deter one from considering the operation even in the event of apparently incurable dacryocystitis and conjunctivitis, as the results in this case may be considered as the best that may be expected. Dr. Fox would prefer treating the lachrymal and conjunctival conditions over a much longer period and with less strong solutions; and, if still refractory to treatment, he would either ligate the sac or obliterate it and proceed to extraction of the cataractous lens. The technic he employs in all cataract operations is especially applicable under these circumstances. Two hours before the operation the skin around the eye to be operated on is carefully cleansed and eyepads saturated with a 1 to 2,000 solution of corrosive sublimate are placed over both eyes. As the infection is usually gross and not microscopic the conjunctival cul-de-sac is thoroughly irrigated with sterile boric acid solution by means of a pipette connected to a douche bottle by a piece of rubber tubing. Just before the operation a drop or two of a 1 to 2,000 corrosive sublimate solution should be instilled. The cocain should be fresh and the instruments made sterile by placing them in a solution of alcohol and distilled water in the proportion of 5 ounces to 32 ounces, as although the eye is usually very tolerant to considerable infection, the resistance may be greatly lessened by contributory negligence on the part of the operator. The question of the bacteriology in these cases is to Dr. Fox's mind of no practical moment, as it has been repeatedly shown that identical forms of ocular inflammation may be produced by dissimilar organisms, according to the character of the external influences. He said that he would hesitate to condemn those who practice reclination under the circumstances Dr. Rogers alludes to, as their experience and skill undoubtedly warrant its employment by them, but to the teaching of its acceptance as an alternate of extraction he is opposed.

Dr. H. V. Würdemann, Milwaukee, declared that he is convinced that this operation is a live one, though it must be very rarely done. Theoretically he would reject two of the indications given by several recent writers on the subject and by Dr. Rogers, namely, chronic conjunctivitis and chronic suppuration of the lachrymal sac. Dr. Würdemann believes that we can sufficiently combat the infection in these cases, long enough at least to do a cataract extraction. He is more afraid of a puncture of the globe with a needle, or even a Graefe knife than of section of the cornea, because the vitreous is much more injured and more room is given for infection. In over a thousand cases applying for cataract operations he has only found one case in which he would do a reclination. The man was 68 years old, blind in both eyes for 32 years; eight years before nature had performed a partial reclination in one eye so that with a correcting lens he had good vision. A little over a month ago Dr. Würdemann did a reclination on the other eye, getting plus 6/12 vision. The patient remained in the hospital only one week. Of course, the patient was warned beforehand of the possible secondary consequences. Dr. Würdemann had never done the operation before except on pigs' eyes. He held the lens down for about five minutes, waiting to see if it would come up again. The patient is able to read and to get about.

Dr. J. L. Thompson, Indianapolis, said that there is one class of cases in which nothing else will do; that is where there is fluid vitreous. He has had cases from excellent surgeons where one eye had been operated on and lost, and he knew that these surgeons knew how to do a perfect operation; then he made a preliminary iridectomy before operating for the extraction of the other cataract. Wherever there is any doubt at all, do a preliminary iridectomy. Then reclination may be performed if necessary. If Dr. Thompson were going to do a reclination he would certainly do a preliminary iridectomy first and at least six weeks before the couching.

Dr. J. Walter Park, Harrisburg, Pa., mentioned a case in which he had intended to do a cataract extraction without iridectomy. After the usual incision he followed the Knapp method of lacerating the capsule and, whether due to carelessness on his part or to undue pressure in trying to get the lens out, instead of coming out it went down into the vitreous and a large bead of vitreous appeared. He at once closed the eye and watched it carefully. The case was some distance from his home, but he went to see the patient every other day. On the fourth day she complained of seeing "black spots," but that was all, and the eye did well. She made a good recovery and has been able to read up to within the last six months. Her vision is now commencing to grow dim and she is thinking of having the other eye operated on. Neither the family nor patient know that it was not an ordinary successful cataract extraction.

Dr. S. D. Risley, Philadelphia, recalled the case of an aged negro, who came to the university some years ago. A famous Maryland surgeon was riding on horseback along a hot, dusty road in July, and met an old family servant painfully feeling his way along the road. The surgeon said, "Sam, what is the matter; can't you see your way?" He said, "Why, I'se blind, marster." "Well, let me see," said the surgeon. "Why, you have cataracts; let me take them off for you." Opening his saddle-bags, he took out his needle and reclined the lenses as the former servant turned his face upward in perfect confidence in his old master. The old servant, delighted with the result, expressed his gratitude, and master and man went their respective ways. Fifteen years later the aged and now decrepit negro came to Dr. Risley's clinic almost blind. The opaque lenses were bobbing about in a fluid vitreous which was full of opacities. When these subsided somewhat a study could be made of the fundus which showed one of those always remarkable pictures of atrophic choroiditis. Dr. Risley believes that this is what usually takes place from the presence of a reclined lens in the globe. He has seen it over and over again after dislocation of the lens as the result of accident. There is a slow choroiditis and gradual destruction of the eye through degenerative processes caused by the lens acting as a foreign body.

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[24] Other literature which may be consulted is as follows: Wilder, W. H.: Dislocation of the Lens, Chicago Med. Recorder, 1892, vol. iii, pp. 460-465. Theobald: Report of a lens totally dislocated into the vitreous and retention of useful vision, Tr. Am. Ophth. Soc., N. Y., 1881, vol. iii, p. 100. Wilson: Accidental Depression of an Opaque Lens, Ophth. Hosp. Rep., London, 1860-1862, vol. iii, p. 65. Noyes: Luxation der Linse in das Corpus Vitreum, Ber. a. d. Versammel d. Ophthal., Geselschaft, Stuttgart, 1884, xvi, 90-96. Higgins: Displaced Crystalline Lens Floating Freely in the Vitreous Chamber, London Lancet, 1892, vol. ii, p. 812. Martin, H.: On operations for cataract among the natives of India, Ophthal. Hosp. Rep., London, 1858, i, 161-168. Robertson, J. A.: Observations on Extractions and Displacement of Cataracts, Edinburgh M. & S. J., 1837, vol. xlvii, pp. 378-390. Fuch: Text-book of Ophth., p. 700. Schmidt-Rimpler: Augenheilkunde. Text-Book, p. 374.

Dr. F. T. Rogers said that he appreciated as well as anyone the dangers from glaucoma and other secondary changes, but if called on to decide what is to be done for a man in this condition he is sure that nearly all would consider this operation seriously. He thinks that Dr. Risley's case of the old negro is not a good argument, because the man might have had a choroiditis before the operation and the immediate vision might not have been much better than when Dr. Risley saw him. The patient's statement can hardly be considered as accurate.

# EYE STRAIN.

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The subject of eye strain, including the need for wearing glasses, has for some years been rapidly forcing itself into prominence and has assumed an importance far beyond any expectation. It is in no sense a fashion or fad, though there are many such in medicine. The eyes are, and have been in the past, the unsuspected cause of a great variety of nervous disturbances that were never understood and never satisfactorily explained. Modern methods of study, which have lately accomplished such wonders in all branches of science, when applied to the eye have brought order and truth out of what had been a tangle of theory, supposition and uncertainty. The eye has always been studied simply as a part of the body, under physiology; it needed to be studied as an optical instrument, under optics, a branch of science in which our knowledge is mathematically accurate. Strange to say, it has always been considered a satisfactory explanation, when eyes are painful, weary, dreading light or close work, to say that they are weak, and that the proper treatment is to rest and to avoid using them.

No organ of the body should fail to perform its own particular function or show difficulty in its performance unless something is out of order; the proper thing to do is not to give up its use, but to find the trouble, to correct it if possible, and to restore the organ to usefulness. Many people use their eyes almost constantly on fine, close work without a thought or a twinge of pain; they have normal eyes. Many others find more or less fatigue or trouble, even from very moderate work, and are compelled to give up the use of their eyes, even though they may see well. These people have abnormal, imperfect eyes, even though they have good, clear vision. It is not, therefore, the amount of work done that causes the pain and fatigue, it is the kind of eyes with which the work is done.

The value and usefulness of every optical instrument is well known to depend primarily on the exactness of shape of the lenses and on the accuracy of their position; and every instrument, though built to be correct for general use, has to have some means of adjustment, to focus or to adapt it to the varying conditions of light and distance. The eye is a camera, with its lens inside; the pupil the stop, or diaphragm; the eyelids the shutter; but instead of a plate or film to take each picture, it has the retina, or expanded optic nerve, ever ready to feel and to convey to the brain countless pictures in constant succession. It also has its adjusting power; not a screw nor a draw tube, but the delicate ciliary muscle, which acts on the lens and changes the focus according to the nearness of the object looked at, but which is not needed for distant vision. Being an optical instrument, the eye can not escape the fixed law of optics, the necessity for extreme accuracy in the original shape and position of its parts.

We know that all parts and organs of every living body vary much in size and shape and that many differ greatly from what is known to be the typical or perfect shape. Unfortunately, the eye is no exception. Since instruments have been invented to make accurate measurements, it has been found that the eye varies as much as everything else. Each person is born with his own pair of eyes; sometimes they are correct, oftener not so; often they are not alike and can not work together properly. If the eyes are not optically correct they are made correct so far as possible by using the ciliary muscles. The baby rapidly learns to do this, and grows up seeing very well because he works and corrects his errors. Since the errors are always there, however, and must always be corrected before he gets any clear vision, he is compelled to keep his muscles at work all the time if he wishes to see clearly. Though muscles are made for work and grow strong and healthy from it, rest in proper quantities and at frequent intervals is equally essential to their health and strength. Muscles tire if kept at work too long, and the more tired they become the greater the amount of nervous force required to keep them at work, and the sooner they become exhausted. The normal eye rests when looking at a distance, but eyes of faulty shape have their errors to correct even in distant vision; so they get no rest anywhere. It is not, therefore, the reading, writing or sewing (which is proper work for good eyes) that is responsible for the fatigue and eye strain; it is being compelled to do this work with imperfect eyes.

If variations in eyes are so common, and constant strain is present in so many people, why do they not all break down and show serious trouble? Because there are secondary influences that also have to be considered. First, muscles tire much more quickly with hard work than with slight work; one can carry ten pounds much longer without fatigue than a hundred. It is a law of optics that the work required of the adjusting power increases very rapidly as the object we look at comes nearer. A certain amount of effort of the ciliary muscles is necessary to adjust the eyes if an object twenty-five feet away is moved twenty feet nearer. It requires just as much increase of effort if an object three feet away is brought one foot nearer, or if an object one foot away is brought one inch nearer. It depends, therefore, very much on whether the owner of the faulty eyes is occupied chiefly in looking at objects several feet away, involving very slight effort, or whether he is reading, drawing or writing. Second, it depends greatly on the nervous system that has to supply the energy to the muscles. If the health is perfect and the supply of nerve power abundant the amount needed for the necessary correction of errors may not be felt for a long time, perhaps it may never be noticed; but if the nervous system is not strong or if any other conditions arise which draw heavily on the available supply of nervous energy, illness, worry, overwork, anxiety, overexcitement, then the little errors may prove a heavy burden. With a good income, little expenses may be disregarded; but with a small one they become of serious importance.

To this extent only, eye strain is conditional on the general health and constitution, and on the high tension of modern life; but the cause once there is always there, a fixed tax on one's powers, ready to grow into a burden at any time. It is not difficult, therefore, to understand that the demand for clear vision all the time, and near vision most of the time, may cause severe strain on imperfectly shaped eyes. It is not quite so easy to realize that with keen vision and free use of it, without any eye symptoms, eye strain may be responsible for results, which appear far off, in some other place. But since we insist on having clear vision all the time, we are obliged to borrow the extra nerve power from elsewhere; and, while the sight may be all right, some other place suffers. It is found to be an actual fact that eye strain is often the principal factor producing nervous debility, hysteria, melancholia, vertigo, nausea, insomnia, nervous dyspepsia, palpitation, general nervousness, irritability, faintness, weariness, headaches, constipation, and dozens of other annoying conditions. Eye strain is not a temporary condition due to some recent extra eye work, though that may be the occasion that brings it into notice.

Eye strain is a permanent waste of nervous energy in correcting the slight congenital and permanent errors in the shape of the eyes. This waste is not felt by a strong, healthy system, but is ready to become a decided tax whenever the system gets below par, and its effects are intensified immensely by continued close work.

When once the muscles have been taxed to the point of exhaustion, and nervous reflexes or disturbances set up elsewhere, then any effort to force the eyes to continue their work may cause actual physical damage requiring a long time to repair. It is like the breakdown that comes from overwork in any other way, repair is slow and sometimes never perfect.

Generally, the first effects of eye strain draw no attention to the eyes, for it may not affect the vision and very often does not interfere with the use of the eyes, but it fatigues and taxes the nervous system and compels one to pay dearly for it in some other way. The great misfortune is that it is not usually discovered, nor even looked for, until the trouble is well established. All grades of disturbances may result from eye strain, from the slightest smarting or weariness of the eyes after close work to confirmed invalidism. It may show itself in the youngest child, as irritability or nervous excitability, or it may not appear till the burden of old age forces it into notice and uncovers the cause of many an unexplained fret and disability. It may be an unsuspected factor aggravating and intensifying some other weak spot or ailment, and may take different forms at different times; it may excite a weak heart, dull the mental powers, or put the whole system out of balance.

Now that the cause of eye strain is known, we have the choice of two methods of relief: we may remove the conditions that make it a burden, or we may correct, but not remove, the cause. We can stop using the eyes for reading and for all kinds of near-work; stop doing the things which have been using up our energy, and then the tired muscles will slowly recruit and be able to get on very well, so long as the eyes are used very moderately. This method gives relief, but at the cost of permanently giving up near-vision to a great extent. On the other hand, we can search out and measure the errors in shape and by using correcting glasses, obtain relief, so long as we submit to their use, sufficiently to avoid the accumulation of fatigue.

Both these methods are very unpleasant. One does not wish to give up near-work; it is always a pleasure, usually a necessity. One does not wish to wear glasses most of the time, they are an annoyance and a cross; and yet there is really no other way, except to bear the strain and its increasing results—one never gets a new pair of eyes. This, then, is the second, very unpalatable fact: there is no way to prevent the bad effects of eye strain that is not unpleasant, and, since the cause is permanent, the prospect is very discouraging.

Theoretically, glasses should be worn constantly, since the errors are fixed, but if the eyes can once learn how to rest, they are usually able to bear their overwork a fair share of the time without bad results; but they must have rest, and at frequent intervals. The dislike to wearing glasses is so great and universal, the reason for wearing them so little understood, and the temptation to the oculist to avoid forcing such an unpleasant remedy on his patients is so strong, that they have been worn generally, for close work only, or for temporary relief, and as little as possible. Wearing glasses for near-work simply, makes that work as easy for imperfect eyes as it is for good eyes without glasses. But good eyes, having done their work, look off at a distance and rest; imperfect eyes can not look off and rest unless they keep the correcting glasses on; and rest is the most important thing. Rested eyes are able and willing to work hard; weary eyes that are not permitted nor taught to rest are unfit for work. This is the reason why so many people get such unsatisfactory results from wearing glasses; they wear them to aid them on their hard work, but fail to wear them so as to get any rest.

The third unpleasant point is that if glasses are needed at all they are really more beneficial when worn for resting or distant vision than for close work; but that is exactly opposite to what people wish to do or find agreeable. Too many people decide to follow their own inclination, but are sure to find later that the cost of so doing is much greater than they had expected. Much study and experimenting, with the aid of skilled workmen, have succeeded in producing instruments and methods wonderfully accurate for measuring optical defects in the eye or elsewhere. With these, it seems as if the oculist ought to find it an easy matter to immediately correct the slight variations in the eyes, which may be the source of so much annoyance and nervous wear and tear, if patients would consent to wear the hated glasses.

Experience has brought out another troublesome fact that till recently baffled investigation and thwarted the best endeavors of the oculist and the expectations of those who looked for relief. It has long been realized that the eyes seem to vary very much and change as time goes on; that different observers, or the same observer, get different measurements at different times. Mydriatics have been used to paralyze the muscles, but it has been found that the eyes will generally refuse to accept as much correction as seems to be needed under such examination; and only temporary relief is obtained from the correction they accept. Confusion results and confidence in oculists' measurements and opinions, naturally, is much shaken. But carefully kept records, following cases for years, and study of final successes, have brought out clearly the reason for all this. The fault is not with the instruments, the oculist nor the patient; it is the life-long habit of the ciliary muscle that prevents it from fully relaxing and exposing the whole error. It can not relax fully, because it is not under the control of the will; it acts automatically, from a habit, too strong to be given up all at once. It must be remembered that the child was born with its errors, and in every act of vision, during every waking hour, he has been obliged to use this muscle to get clear vision; he never saw without making an effort, and it has become as natural to make this effort, if he opens his eyes, as to speak his own language if he talks. So, when a child a man is asked in the oculist's office to open his eyes d see *small letters without correcting his errors*, as he always has done, he is asked to do an impossible thing. He simply can not. He does relax partially, but he can not let go and rest. The error is measured by the instruments, just as far as he relaxes and lets it out; but they can not measure the part he still, involuntarily, continues to correct. It follows, therefore, that glasses have to be changed from time to time as fast as the patient learns to relax. No one can accept the correction of the whole error at once, for old habits can not be given up suddenly. Nor do the eyes accept full correction willingly, for they are so much more familiar with their own way.

It is, of course, the first and natural thought of every one (oculists also, till they learn by experience to the contrary) that the *glasses which give the sharpest*, clearest vision, and which can be worn immediately, without annoyance, are the proper ones. But such glasses must always permit the ciliary muscle to retain part, at least, of the old habit. The muscles can not give up their *habit* suddenly or easily; they have to be urged, against their will, to learn to rest. Of course, the patient naturally objects to wearing glasses much if he thinks he can *get* on without, or to be hurried out of his old familiar way; he prefers to relax a little at a time, and to retain clear, sharp vision everywhere. And, of course, it is much easier, perhaps more profitable for the oculist, to yield to the patient's earnest desire, and let him wear the glasses but little and make them weak enough to please him. This way usually involves many examinations, and slight changes of glasses, perhaps spread over many years and give, meanwhile, only partial relief. Rest and ease can not come without the use of glasses for distant vision, nor until relaxation of the tired-out muscles is complete. If decided, speedy and permanent comfort and ease in the use of one's eyes are desired, it is the duty of the oculist to urge the patient to accept as much correction as he can, not what he likes, and to learn, by much practice, to relax completely and as soon as possible. What reason or sense is there in *correcting* only a part of a known error and leaving the rest to keep up the *strain. One does* not rest a weary, uplifted arm by dropping it a little or a good part of the way; it is the letting go that gives ease; once rested, *the muscles* are ready to work again. We judge of a surgeon or a dentist by the thoroughness and permanence of his work. Why not *judge an* oculist in the *same* way? The work is not *done* till the eyes are taught to rest. The prevailing idea, that to use glasses too much, or to wear glasses seemingly overstrong, weakens and impairs the natural power of the eye, *is a mistaken one*. It is perfectly true that the eyes ought to do their own proper work themselves without assistance; just as it is true that a man should use all his muscles freely and even work hard with them, for he would be better and healthier for it. But it is not true that he is strengthened by using them all the time without any rest. Glasses which correct the optical imperfections of the eyes, when worn all the time, simply *remove the abnormal tax on the muscles*, resulting from the imperfect shape of the eyes, remove the constant strain, render the eyes *normal and give them a fair chance* to work and rest, just as much and under the same conditions as do perfect eyes. The glasses do not do a bit of the work the eyes ought to do; they simply correct imperfections, oil the machine, remove unnecessary friction and prevent waste of power. If, by *chance, we should put on a little too much oil*, no harm is done, the machine is not injured, no power is lost. It is vastly safer for the welfare of the eyes to err on the side of giving a trifle too much aid rather than leave them compelled to work a trifle, with no chance of ever resting. So, contrary to the general idea, sharp, clear sight, so highly prized and the boast of many, is not the proof or the test of a good eye; for many who have the keenest *vision can not use their eyes much or* with any comfort.

Easy vision—vision that can be used and enjoyed freely, without thought or fatigue—is the proper test of a good eye. The normal and the imperfect eye may see equally well; *the imperfect eye may actually see* the better; but one can be used with no consciousness but pleasure; the other wearies and has to be carefully *guarded from bright light and from overuse*, and may make its owner conscious of a lack of nerve power somewhere most of the time.

When the fact is realized that congenital and natural variations in the shape of the eyes are the cause, not *only of so-called weak eyes, but a very large part* of the nervous frets and weaknesses which mar the ease and comfort of so many lives, it will be considered wise to hunt for errors in the child. None can be found if they do not exist, nor can strain on the nervous system be avoided, if they do exist, by leaving them uncorrected. The child, who begins early, has no strong habits to break, *easily learns to accept full correction*, and by wearing glasses a few hours a day, at home in the house, keeps out of all trouble, and is not confined to the glasses, for he *never gets exhausted and knows how to* rest if he is tired; yet he should never discard them entirely, for his errors remain as long as his eyes do.

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# SOME FALLACIES IN THE AGGLUTINATION TESTS;[1]

## A PLEA FOR THE EMPLOYMENT OF A MORE UNIFORM TECHNIC.

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The increased attention which has of late been extended to the serum agglutination of bacteria has brought into prominence certain fallacies which arise in the experimenter's hands, and which must have been noted, to a greater or less extent, by everyone working in this subject.

The literature which has now accumulated dealing with the agglutination of the typho-coli group alone is nigh unlimited, and many of the reports are so at variance with each other that we are landed in a hopeless confusion when we strive to draw the true inferences from them. Some have held that the agglutinins produced by each organism are specific, while a host of others have denied this and have pointed out that they are only special for closely allied groups of organisms. Others, again, have demonstrated that this agglutination reaction is not necessarily a vital one. but is also exhibited in inert substances in a fluid medium. This latter phenomenon, Sir Lauder Brunton[1] and Norris demonstrated by the use of bits of soaped cork floating on water which had been faintly acidulated. Hence, in recent years, one would almost be led to believe that the Gruber-Widal reaction, which was to become the only *absolute test in differentiating* various infections and to group the different organisms into their respective classes, must be overthrown.

Much of this confusion has been due to the different methods employed in the technic; in fact, there are almost as many methods as there are workers in the subject. In such delicate tests as are required for the agglutination reaction, our present methods, though much advanced through the experiences of eight years of research, are still very crude, so much so, in fact, that many personal errors, including technic, are only eliminated with difficulty. It was a similar state of confusion which led American bacteriologists to adopt a standard method of procedure in determining the biologic characters of bacteria.

Quite recently, Nicolle[2] has emphasized the necessity of the various workers employing a uniform technic. It is the first essential if we wish to obtain some comparable reports and results of agglutinins, to adopt common methods, not only in the instruments we use, but also in the treatment of the animals and cultures we employ. The fact that one observer obtains agglutination of an organism, even in a stated dilution of his serum, neither tells us the susceptibility of his organism nor the potency of his serum; all depends on the age of the culture, the medium in which the agglutination has been carried on, the temperature of incubation, the reaction of the medium and many other points which will be discussed in turn.

### AGE OF CULTURE.

The term "age of culture" may mean one of two things—either the length of time that a given culture has been growing in or on one particular mass of medium, or the time that the organism has been isolated from the animal body or from its natural habitat in water and transferred to artificial media. Here we refer to the latter.

That environment plays a great part in modifying the characters of an organism is well seen in the following: Rodet, and Nicolle and Trenel[3] found that the *B. typhosus,* isolated from typhoid patients, would agglutinate with great difficulty unless it had been retained on artificial media for some months. Bail[4] observed this same difficulty in agglutinating organisms isolated from water, but that this difficulty could be partially overcome by heating the organisms to 60 C. Wyatt Johnston[5] pointed out in 1897 that the power to agglutinate varied widely with different cultures of the same organism more especially, he said, with the degree in virulence. The relationship of agglutination to virulence seems to be only one of activity of the organism. Thus a strain which is frequently transferred to fresh media, and hence culturally becoming more active with increase in its virulence, is found to be more sensitive to agglutination.

I found the same difficulty as Rodet and Bail in agglutinating newly isolated strains of the *B. typhosus.* A laboratory stock culture of *B. typhosus* which had been on an agar medium for over ten months was grown in a flask containing 400 c.c. of water and 50 c.c. of neutral bouillon. Another strain of *B. typhosus* recently obtained from the spleen of a patient, was taken from the first transfer on agar and inoculated into a similar mixture of broth and water. Both strains, incubated at 37 C. for eighteen hours, were tested against an alien typhoid-immune serum (rabbit).

DILUTION OF TYPHOID IMMUNE SERUM.

| | I-60 | I-120 | I-310 | I-620 | I-930 | I-1240 | I-2480 |
|---|---|---|---|---|---|---|---|
| Old laboratory stock. | + + | + + | + + | + + | + + | + + | + |
| Recent strain. | + + | + | ± | 0 | 0 | 0 | 0 |

In the table the following signs are used: + + to indicate strong agglutination. + to indicate fair, but not intense and rapid. ± to indicate partial.

Evidently strains of *B. typhosus* newly isolated from the animal body have a diminished affinity for agglutinins. It would seem that the agglutinin receptors of the micro-organisms are already satisfied or partially satisfied by the agglutinins obtained from the reaction of the tissues of the recent host. That an organism once agglutinated, whether *in vitro* or *in vivo,* retains the inability to unite with the agglutinin haptophores, is borne out in all the experiments; and hence in testing the potency of a serum we must be careful in selecting our test organism.

The growth of the old laboratory stock strain in the flask was quite different from that of the recently acquired strain. The former showed a medium equally clouded throughout; the latter, though the medium showed similar cloudiness, also showed a fine granular layer at the bottom of the flask which consisted of pseudo-clumps. These clumps, microscopically, did not differ from true clumping except that, in the medium about them, there were still actively motile organisms. The lower limit of the dilution, obtained in the strain recently isolated, has been our experience in all such tests; and this, too, is the case when the organism has been isolated from the blood or feces of a patient. Different strains of *B. typhosus* do not agglutinate uniformly until grown for at least six months on agar. Up to this time they increase in susceptibility to the agglutinins. This latter point opens up a question: Can we distinguish, by the avidity with which an organism, isolated from water, becomes agglutinated, how long that organism has dwelt outside the animal body? The clearing up of this point would give the absolute value of finding *B. coli communis* in drinking water as establishing its source from recent contamination.

### MEDIUM IN WHICH AGGLUTINATION IS CARRIED ON.

All living cells are influenced, more or less, by the medium in which they are grown; either by its affecting their morphologic characters or perverting their secretions. Now, the agglutination process depends on a chemical or at least on a physicochemical reaction. This reaction must, of necessity, vary according to the nature of the secretions. The agglutinable substance produced by the micro-organism must take the form of an excretion which, along with other products, is modified by the medium in which the micro-organism is grown. The whole question of whether or not a microbe agglutinates well with its homologous serum (granting that the serum is potent) depends on the quantity of agglutinable substance it has produced or can produce. This frequently depends on the method of culture employed. Some prefer growing the micro-organism in a plain neutral broth to which an active serum is then added. Others use specially prepared media, as in our own[6] case, where a weak broth is used so as to dilute the albumins and proteids in the medium as much as possible without affecting the growth of the organism. Our dilute broth was made up of 450 c.c. of water, to which 50 c.c. of beef broth (as described by the Committee of American Bacteriologists) was added. We thus obtained a uniformly cloudy medium which was always of the same opacity after eighteen hours' incubation. Others, again, prefer to grow the microbe on agar, from which an emulsion is then made in water or in sterile salt solution, equal to the opalescence of a given solution. This will be referred to later.

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[1] Lauder Brunton: Jour. Path. and Bact., 1901, vol. vii, p. 53.

[2] *Nicolle:* Annal. de l'Institute Pasteur, 1904, vol. xviii, p. 209.

[3] Nicolle and Trenel: Annal. de l'Institute Pasteur, 1902, vol. xvi, p. 562.

[4] Archiv f. Hygiene, 1902, vol. xlii, p. 307.

[5] Wyatt Johnston: Trans. Amer. Pub. Health Assn., 1897.

In 1901 Savage pointed out that a spontaneous clumping occurred in certain of his strains of *B. typhosus*, but always in a broth medium. The clumping appeared mostly in cultures several days old, but it was also seen in twenty-four-hour growths. No modification in a medium could be found which prevented its occurrence or modified its appearance. Such a spontaneous agglutination was never noted by us in using the dilute broth medium.

A year-old laboratory culture of *B. typhosus* was grown in our weak broth medium, and another transfer made from the same strain into an artificial broth medium as used in the laboratory, made from Liebig's meat extract, using 3 grams of the extract, 10 grams of Witte's peptone and 5 grams of salt to 1,000 c.c. of water. Both were under the same conditions of temperature, time and reaction. After eighteen hours' incubation, each was tested against a common immune serum. It was found that the clumping in the weak broth appeared sooner, but, at the end of two hours, the reaction in it was not so nearly marked as in the stronger broth used. In seeking an explanation it was found that the filtrate of the more concentrated medium gave a precipitate with the serum, while the weak medium did not react. This brings up another point—that of peptone precipitants present in artificially produced sera due to inoculating peptone cultures into the experimental animal. We know that various proteids inoculated into the animal body will call forth the reaction of an antibody, which antibody, in the presence of the substance injected will cause a precipitation. With the latter view of Wassermann, that agglutinins and precipitins are identical in character, this would mean that the agglutinable substance within the body of the organism will, under favorable conditions, be extruded into the surrounding medium, and will exist in it as free bodies ready to be acted on by the agglutinins. Now, in carrying out experiments regarding agglutination, it is of great import to concentrate the agglutinable substances within the body of the microbe and to have as little free in the medium as possible. That the free precipitating body in the medium is identical with the agglutinable substance, is not proven as yet, but true it is that frequent washing of an organism relieves it of the power to agglutinate when acted on by an active serum.

The reaction of the medium in which the microbe is grown also plays a part in the sensitiveness of the microbe to agglutinins. I have found that *B. typhosus* is most sensitive when grown on media neutral or faintly acid, +2.0 N/10 to phenolphthalein.

Further, Bordet[7] points out that agglutination takes place much more actively in emulsions of the organism made in normal salt solutions, than in emulsions made in sterile water without the presence of salt.

### TEMPERATURE OF INCUBATION.

Cultures obtained from the same stock and inoculated into weak broth media, but placed at different temperatures of incubation, are found to show a different power of agglutination. *B. typhosus* will grow well at 37 and 42 C. This organism grown at these temperatures shows a more active agglutination reaction in the cultures grown at 37 C. At this temperature well-marked agglutination was obtained at a dilution of 1 in 4,960, while only a faint agglutination resulted with the same serum in a dilution of 1 in 2,480, in the colony grown at 42 C. Whether there are more or less products excreted by the organism at one temperature than at another, which have an influence on the agglutinative reaction, or whether there is a difference in the number of organisms present in the medium, or both, I am not prepared to say.

Under this same heading I would also note another interesting phenomenon in the technic of agglutination. If a culture of the dilute broth be taken directly from the incubator at 37 C. and placed in the cold, the typical agglutination flocculi will result. This can be demonstrated very prettily by growing the *B. typhosus* in long tubes, such as described by Adami and Chopin[8] for macroscopic agglutination tests. After incubating eighteen hours place the tube in ice water. Within twenty minutes very decided flakes will be seen adhering to the sides of the tube which, in the course of several hours, will be precipitated in flocculent masses. The carrying of these tubes from an incubator at 37 C. to a cool laboratory at 17 or 18 C., is often sufficient to chill the culture and produce the pseudo-clumping.

### NUMBER OF ORGANISMS PRESENT IN TEST EMULSIONS.

In our present belief that an immune serum contains agglutinins which are limited in amount or number for such serum, we can conceive that there must be an equally limited number of receptors which will exactly neutralize that serum. It matters not whether we consider agglutination as a chemical or a physico-chemical reaction. Should these receptors be too few in number, there being too few organisms in the medium acted on by the serum, there will be a definite amount of agglutinin, which is still potent, unsatisfied. This is somewhat similar to the observations of Castellani, who found that, in sera containing several varieties of agglutinins, he could satisfy and remove one without affecting the other. Thus from a serum which agglutinated both the *B. typhosus* and *B. coli communis*, he could remove the agglutinins for either one by subjecting the serum to the respective organisms and still leaving the agglutinin for the other unaffected.

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[6] My remarks apply to the methods in use at McGill University, Montreal.

[7] Bordet: Annal. de l'Institute Pasteur, 1899, vol. xiii, p. 225.

[8] Adami and Chopin: Jour. Med. Research, 1904, vol. ii, p. 469

Again, if a medium contain so many organisms that the receptors are more numerous than the agglutinative haptophores of the serum, the total amount of the receptors will be unsatisfied by this serum with a consequent imperfect agglutination reaction. Thus it is impossible to compare the agglutinability of two strains of the same organism unless the condition as to the number of receptors—or, in other words, the number of bacteria—is the same. To obtain a medium having a standard number of organisms, Sacquépée and, later, Nicolle, used as indicators of opacity, suspensions of silver chlorid and lead carbonate, respectively, which were made with a definite formula. Emulsions of bacteria, either in broth or normal salt solution, were then made to the same degree of turbidity which represented the amount of opalescence in an eighteen-hour culture. We found that, by growing the organism in a large amount of medium—500 c.c. of weak broth—from a relatively small mass inoculated (three platinum loop fulls), that the degree of turbidity varied in imperceptible limits. When the food supply is in such relatively large quantities to the number of organisms inoculated in it, the growth, in the first eighteen hours, is constant.

A control emulsion of silver chlorid was prepared equal to the turbidity of one of the flasks, and this was compared with that of the succeeding cultures. When the time of incubation was kept constant, the opalescence of the growth did not vary in the different flasks.

### MEDIUM USED IN INOCULATION OF ANIMALS.

Another process which leads to discrepancies in the agglutination test is the diluent used in the inoculation of animals for serum production. It has been frequently shown that the inoculation of proteids from different sources sets up in the animal the production of an anti-body in the form of a precipitin. Under these proteid bodies come also peptone and meat extracts. The injection of these substances calls forth precipitins special for each, and, if the sera from the inoculated animals are added to proteid solutions similar to those inoculated, we obtain the deposition of flocculent masses—the precipitate. Now, in inoculating animals with broth cultures, we set up a series of reactions— the formation of agglutinins for the microorganism and a special precipitin or precipitins for the proteid elements in the medium. The serum thus obtained, when tested against another broth culture, will show a distinct macroscopic reaction, whether the specific organism be present or no, the organism being mechanically carried down with the precipitate formed and appearing to afford in all respects a typical agglutination reaction.

To obviate the confusion arising from agglutinins and precipitins, the organism must be grown on solid media from which it is then removed with the platinum loop and emulsified in sterile water, or better, a normal salt solution. This emulsion, when inoculated, will produce no precipitins in the blood serum.

### AGGLUTINATION REACTION DUE TO OTHER THAN SPECIAL SERA.

Agglutination following the addition of small dilute quantities of certain chemicals, has an interest beyond the mere experimental one. Such chemicals are used, not infrequently in disinfecting our reagent glasses, and also as preservatives for agglutinative sera. Among the reagents which, when added to a sensitive culture, produce the typical agglutination reaction, are mineral and organic acids, perchlorid of iron, calcium chlorid, mercury bichlorid, safranin, vesuvin and sodium sulphid; strong solutions of formalin will also cause the agglutination. Carbolic acid solution and chloroform are without effect, and hence can be safely used as antiseptics in preserving immune sera.

Blachstein,[9] working on the supposition that agglutination was a purely chemical phenomenon, concluded that there must be substances which will act equally specifically as the active sera against the homologous organism. Such a substance he found in chrysoidin which, in weak dilutions, has specific agglutinating reaction against the vibrio of cholera. Later it was shown that dilutions of chrysoidin would also agglutinate the vibrio of Finkler-Prior, though not in so high dilutions as was obtained with the cholera organism.

The dried blood test, which was instituted by Wyatt Johnston,[5] has its many advantages to the practitioner, but care must be taken in the selection of the paper on which the blood is collected. Testing a series of papers containing no blood, I found that the microscopic clumping could be obtained with some by using as an agglutinin a drop of water which has been in contact with the paper for some minutes. All papers do not act thus, but those which have an exceptionally glossy finish, as the cheap note paper, and leave a dull area where the water has been in contact, give a clumping of the organism.

Blotting paper, such as is used in the Talqvist hemoglobinometer, serves very well to collect suspected blood, and does not introduce any foreign clumping agent in the test. The blood stains are cut out and soaked in a watch glass with normal salt solution. The solution then represents our blood serum to be used.

Wesbrook[10] has devised a method which Wilson has put into practical use for making accurate dilutions of dried blood specimens, which the ordinary blood collection on paper does not allow. He provides the physician with a small sheet of aluminum foil on which the blood drops of a suspected typhoid patient are collected and allowed to dry. In this way the blood of a suspected typhoid case is sent to the laboratory where the dried blood is carefully shelled off of the foil and weighed. From numerous experiments he found that 0.001 gm. of the dried blood was equal to 0.004 gm. of the fresh blood. The weighed dried blood is then mixed with a sufficient amount of sterile normal salt solution to make a dilution of one in fifty or more. As Wesbrook has pointed out, the main difficulty in using this method is the weighing of the blood specimen. A little practice obviates this difficulty.

### MACROSCOPIC VS. MICROSCOPIC METHOD OF EXAMINATION

Each method has its advantages and disadvantages, and each observer has his own reasons for choosing the one or the other. In testing strains of organisms against different sera, we have, at this laboratory, given preference to the macroscopic technic. By carrying out the technic recently described by Adami and Chopin, the observer is relieved, to a great extent, of the fatigue in using the microscope, and, further, he can compare all his dilutions at a glance, gaining a much more exact picture of the potency of the serum and the sensitiveness of the organism. Much finer grades of dilution can be arrived at by using these large quantities of bacterial emulsion than is possible, even with the use of the mixing pipette of the hemocytometer, in the hanging-drop preparation.

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[9] Blachstein: Contribution to Science, Johns Hopkins Univ., 1900, p. 891.

[10] Wesbrook and Wilson: Philadelphia Med. Jour., 1898, vol. i, p. 549.

### SUMMARY.

Without entering into the discussion as to the chemical or physico-chemical nature of agglutination and the bearing this has on the differences in the agglutination reaction, and vice versa, I wish to point out that in carrying out these tests we require a greater uniformity in the technic to allow comparisons of the results obtained by different observers.

The susceptibility of an organism to agglutinins increases for the first six months from the time it has been isolated from the animal body and grown on artificial media.

Inoculations of animals with broth culture will produce in their sera, beside the agglutinins, precipitins whose reaction in broth culture can not be distinguished from true agglutination, as the organisms are mechanically deposited in the precipitate.

Pseudo-clumping may be obtained by using emulsions of bacteria in undiluted broth and testing against the above serum.

The agglutination of a micro-organism varies with the medium in which it is grown, the reaction of that medium, the temperature of incubation, and the number of organisms present in the emulsion.

Pseudo-clumping may be produced by sudden changes in the temperature and by the addition of certain chemicals. The addition of carbolic acid or of chloroform as preservatives in an immune serum does not interfere with the agglutination reaction.

In using the dried blood test, paper having a soluble gloss should be avoided for collecting the blood.

In our hands the macroscopic method for determining agglutination has proved the most useful and rapid. A time limit of three hours has been placed on all these reactions.

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# THE SCINTILLATING SCOTOMA OR TRANSIENT FUNCTIONAL HEMIOPIA.*

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The phenomenon of scintillating scotoma is well known, though it is not always described in the text-books on diseases of the eye. My interest in this affection dates back many years, when I became more intimately acquainted with it through *personal experience.* Since then I have talked with many physicians, and especially ophthalmologists, who also had knowledge of it from personal experience, and what I have thus gathered is recorded here. It should be of particular interest to the general practitioner because patients suffering from this disturbance for the first time are greatly alarmed and apply to their family physician for relief. This condition was first described, so far as I know, in a dissertation by Vater and Heinecke,[1] in 1723. Since then many men eminent in medicine and in the natural sciences have described this condition as they have observed it. Various names have been applied to this phenomenon: Scintillating scotoma,[2] teichopsie,[3] *amaurosis partialis fugax,*[4] ophthalmic migraine,[5] and transient functional hemianopia.[6] The last name seems to me to be the most appropriate, though in many cases the defect occupies only a part of the half of the field.

### SYMPTOMS.

The attack commonly begins with a disturbance of vision, which often greatly frightens the patient. If asked to describe the nature of the disturbance he can not do it; he is conscious, however, that there is something wrong with his sight. If he remains sufficiently calm to observe the phases of the phenomenon, he will notice if, for instance, he is looking at a printed page, that some of the letters or words either to the left or to the right, or perhaps also a little above or below the right or left of the point of fixation, are blurred, in a minute or two later they have entirely disappeared and are obliterated to his sight. Or, if he happens to be looking in the face of a person a few feet away from him, he will see only the left or the right eye, or only the right or left lower half of the face; or, if he is looking at a sign with the word Thompson on it, he will be able to see one-half of the word only, either the son or the Thomp; at the same time, his attention will be attracted by the appearance of a luminous disc at or near the place where the scotoma was first noticed. This disc is usually bounded by a far brighter and sometimes serrated outline. Very soon the disc is changed into a ring which in a short time breaks near the fixing point; the ends separate more and more, so that soon he sees a luminous arc instead of a ring. The arc gradually becomes larger and at the same time floats slowly on to the periphery of the field of vision, its convexity being directed either out, up or down. One of the ends of this arc often comes close to the point of fixation; it rarely reaches over the median line. With the enlargement of the luminous arc there is also an increase in the size of the defect towards the periphery, but it very rarely, if ever, reaches the fixing point. Sometimes the defect includes the entire half of the field of vision, and there is a complete hemiopia. The luminous arc or crescent gradually becomes fainter and then disappears entirely, in the outer periphery of the field of vision. The defect usually continues for a few minutes longer and then also disappears entirely, leaving a sensation of dazzling, which also vanishes after a few minutes.

The duration of the whole attack lasts from a few minutes to an hour or more. It leaves the eyes in the same condition in which they were previous to the attack, and, so far as I have been able to observe, never leaves a permanent defect. In a few of my cases the phenomenon was followed by a slight headache, and in a very few instances by a tingling in the extremities of the side in which the defect in the field was observed.

Some writers state that a slight vertigo often precedes the attack, but this I have never noticed. Gowers says that in 50 per cent. of the attacks of migraine the phenomena here described are the first symptoms of the attack, and other writers have made similar statements. This discrepancy between my experience and that of the writers mentioned is doubtless due to the fact that patients in whom symptoms of migraine follow the visual disturbance consult a general practitioner or a neurologist, while those without these symptoms seek the advice of an oculist.

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* Read before the Newark Medical and Surgical Society.

[1] Vater u. Heinecke: Dissertatio, qua visus duo vitia varissima, alterum diplocati alterum dimidiati physiologice et pathologice considerati exponuntur; Wittenberg, 1723, quoted from Schmidt-Rimpler, Die Erkrankungen des Auges im Zusammenhang mit anderen Krankheiten. Wien

[2] Listing: Nervoeses Scotom, Monatsbl. f. Augenheilkunde, v, 1867, p. 335.

[3] Airy, Sir George: On a Distinct Form of Transient Hemiopia. Phil. Trans., London, v, 140, 1870.

[4] Foerster: Ueber Amaurosis partiales fugax, Klinische Monatsbl. f. Augenheilkunde, 1869, p. 422.

[5] Galezowskie: Recueil d'Ophthalmologie, 1883, p. 536.

[6] Gowers, Sir W. R.: A Manual of Diseases of the Nervous System, vol. ii, pp. 157, 839, 2d edition, Philadelphia.

While in my experience the sudden development of a scotoma, that is, a defect in either the right or the left half of the field of vision, always was the first phase, other writers report cases in which the appearance of a cloud preceded the scotoma, while others state that sudden darkness in one-half of the field ushered in the attack. I have never seen this nor heard others mention it. Several of my patients who have attacks now and then, have come to me, at my request, shortly after the attack had begun, and in every one I was able to assure myself of the presence of the defect, although it was small in some cases. Some people speak of this scotoma as a darkness or a shaded darkness, but in all my cases it was a real defect, a blank or a void; whatever had been in this spot on the printed page was entirely obliterated. This defect exists in identical parts of either the left or right half of the field of vision; it may closely approach the vertical dividing line of the two halves of the field, it rarely reaches the fixation point, and very rarely, if ever, crosses the vertical dividing line of the two halves. At the height of the attack there is occasionally, for a moment or two only, an obscuration of the entire field, and very rarely there are for a moment on a printed page a few letters missing next to the fixing point in the unaffected half of the field. Sometimes, in the same persons, the left half of the field will be affected in one attack and the right half in another. In other patients, in different attacks, sometimes only a quadrant of the field and at other times the whole half of the field will be defective.

### METHOD OF EXAMINING PATIENT.

As the defect is always, or nearly always, in only one-half of the field, patients subject to these attacks will say that only the eye on the side of the defect is involved, *but this is a mistake*, as can be proved by examining the field of each eye.

Place the patient a foot away, with his back toward a large window. Have him close one of his eyes, and with the open one look at the physician's eye opposite his open one. Now the physician closes one eye, moves his fingers from the periphery toward the center from various directions. If the patient's field is of normal dimensions he will see the tips of the fingers as soon as the physician sees them.

### SPECTRAL APPEARANCE.

It is difficult to give a satisfactory description of the spectral appearance, as the light phenomenon in these cases is called by Gower. The fleeting character of the phenomenon and the mental state of the observer at the time are probably responsible for the discrepancy in the published descriptions. The most common form and the only form that I have any personal knowledge of is the following: A luminous disc appears at or near the place where the defect in the field of vision first developed, the outer edge of which is much more brilliant than the central part. It is serrated, or it may assume a zigzag shape with prominent and re-entrant angles like the ground plan of a fortification and hence "fortification spectrum."

Inside the circle there may be luminous points in constant motion. In the zigzag outline there are at times indications of color, blue and red predominating, but I have never seen any such high colors as are seen on the drawings made by Airy.[7] The luminosity of the periphery is in marked contrast with the body of the disc. Very soon the part of the ring nearest the vertical dividing line of the halves of the visual field disappears, and there remains only an arc-shaped or crescentic line of very bright light. The ends of this arc may closely approach the fixation point at first, but they soon separate more and more, while the whole arc very gradually floats outward, downward or upward toward the periphery of the field. The convexity of the arc is always directed toward the outer periphery of the field and its outer edge is usually serrated as described above. The more brilliant middle part of the whole outer line in all the serrations appears to be bounded, outside and inside, by a dark line. Sometimes the angular projections of the outline are very irregular, and at times it looks as if two or several such outlines were intermingled. This brilliant arc is in continuous and tremulous motion. In persons subject to these attacks, not unfrequently an arc-shaped, brilliant line, like the above-described, will appear suddenly in the upper or lower portion of one of the halves of the field of vision; it seems to float in the air five or six feet away, will last for some minutes and then will gradually float out of the periphery of the field.

In several such cases which I have had an opportunity to examine while their phenomena continued, I was able to make out a defect in the field corresponding to the apparent location of the floating brilliant line. These spectral appearances, I think, are always present in both eyes, though it is stated by some writers that in some of their cases it was confined to one eye. The light phenomenon is seen with the eyes closed as well, if not better, than when they are open, and this makes it difficult to determine whether it is present in one or in both eyes. To most persons subject to this affection the spectral phenomenon here described is most startling, especially in their first attacks, and their attention is so completely absorbed by it that they are unaware of this simultaneous presence of the scotoma. In a few cases I have been able to examine the pupillary reactions, and found them normal. The attacks were almost over when they were examined. The ophthalmoscopic examination made during the attack revealed always a normal fundus.

### FREQUENCY OF ATTACKS.

In most persons subject to these attacks familiarity soon breeds indifference toward the disturbance and they pay but little attention to it. Some are able to go on with the work in hand, especially if the left half of the field is involved, while a few find it necessary to sit down and keep their eyes closed until the attack is over. Some people begin to have such attacks early in life, and have them of varying severity at irregular intervals as long as they live. Others have only one or two attacks during their whole existence, while still others have them only during a certain period of their lives, at more or less frequent intervals. I know of one person who has had an attack daily for a period of ten years, and of another who for a limited period had two attacks a day. It is said that these attacks diminish in frequency as the patients advance in years, but I know of cases in which this was not true.

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[7] Transactions of Ophthalmological Society of United Kingdom, vol. xv, plates I and II.

### GENERAL HEALTH OF THE PATIENTS.

The great majority of the patients who have consulted me with regard to these attacks claimed to be in excellent health. Many of them admitted suffering occasionally from indigestion, some admitted being children of gouty parents. while others were afflicted with various morbid conditions. In many of these people there was present an oversensitive condition of the eyes: they disliked a glare; they were troubled with muscæ volitantes, and had unusually vivid after-images, which often lasted much longer than normally. These patients were annoyed by the distortion of objects, produced by flaws and imperfections in the window pane of glass through which they were seeing them: they were poor sleepers and had many of the disorders of sleep. Some had so-called explosions in their ears just before falling asleep: others were often awakened by a feeling of numbness and tingling. mostly in their hands or arms. and others had rheumatic pains in their limbs at night only or, at least, much more frequently at night than during the day. Most of these patients were so-called nervous individuals.

Most of the persons so afflicted had normal acuity of vision, normal fields of vision, and no visible disease of the eyes between the attacks. In others diseases of the lids and of the conjunctiva, cornea or sclera were present and caused the patient to consult me, and the occurrence of these phenomena under consideration was mentioned by them only incidentally.

### ETIOLOGY.

Dr. Geo. M. Gould[8] would have us believe that uncorrected errors of refraction in 99 per cent. of the cases are the cause of migraine and, I suppose, of the phenomena under consideration also, but, considering how very many people have these attacks at times, and the great number of people who have uncorrected errors of refraction, it is not at all to be wondered at if the two conditions are sometimes found in the same person: any more than that the phenomena have occurred in persons having preputial adhesions or in persons having gonorrhea or syphilis. I have examined the eyes of many persons having such attacks, under atropin, and have found many of them free from refractive errors: weakness of the external and internal muscles of the eye also was absent in most of these cases.

Among the exciting causes given in the text-books are named faintness from fasting, fullness of the stomach after eating, excessive mental work. sleeplessness. overindulgence in tobacco, and many other things; but, after all. we know little or nothing about the exciting causes. I have known people to have attacks immediately on awakening after ten hours of sound sleep in a moderately dark room. I know that some of my patients had attacks at times while the stomach was quite empty and at other times immediately after a meal. Some of my patients, professional men, had attacks as frequently while they were spending their vacations in the woods as before they went there. and one man who had not had an attack for a year, during which he did an unusual amount of work. had an attack on the voyage home after a two-months' vacation spent in the mountains. I have had among my patients with this affection men and women, boys and girls, some engaged in intellectual work, while others were factory hands or farm laborers who rarely touched a book or even read a newspaper. Some of my women patients are confident that they have their attacks more frequently at the beginning of their menstrual period than at other times.

### PATHOLOGY.

With regard to the pathology of migraine, Gowers[6] says: "No anatomic changes are known to underlie the phenomena of migraine and, from the character of the symptoms and the analogies of the disease, it is unlikely that any will ever be discovered. Two chief theories have been held regarding the origin of the attacks; one is based on the alteration in the state of the vessel that is so conspicuous in the aspect of the patient. The pallor of the surface must be due to contraction of the arteries, and the blushing of the skin to their dilatation, and it is assumed that a corresponding condition of the vessels of the brain is the cause of the derangement of function. The suggestion that spasm of the central arteries is the cause of the symptoms was first made by Whytt, and the evidence in favor of this opinion afforded by the state of the accessible vessel was pointed out by Du Bois-Reymond. Mollendorf urged that vascular dilatation rather than spasm caused the symptoms. and the fact that the condition varies in different cases has led to the theory extensively held in Germany (by Eulenberg and most other writers) that there are two varieties of the disease already mentioned, the 'sympathetico-tonic' and the 'sympathetico-paralytic' form, as they are sometimes termed. According to these theories the disease is essentially one of the sympathetic nerves.

"Another theory is that the primary derangement is of the nerve cells of the brain. Their function from time to time is disturbed in a peculiar manner and the visible vasomotor disturbance is of secondary origin. The sensory symptoms must depend on deranged action of the sensory center of the brain. They indicate a combination of arrest of action and of overaction in the nerve cells concerned. In the language of modern pathology, there is a combination of inhibition and discharge. The loss of sight, for instance, must be due to inhibitory arrest of action, the visual spectrum to discharge. The peculiarities in the disturbance of migraine are its special, often uniform features, deliberate course, and its limitation to sensory structures. To explain them on the vasomotor hypothesis we must assume, first, an initial spasm of the arteries in a small region of the brain: second, that the contraction always begins at the same place. and third, that it can give rise to a definite. uniform and very peculiar disturbance of function. There is no evidence of the truth of any one of these assumptions, and we are not justified in assuming that the state of the surface vessels and accessible arteries is an indication of the condition of those internal organs. Last, that the vasomotor spasm can cause a deliberate uniform and peculiar discharge is not only unproved. but is in the highest degree impossible. In short, the difficulties in accepting the vasomotor explanation of the sensory symptom is so great that it would only be admitted as a tenable hypothesis if there were no other explanation of the coincidence of the two phenomena. We know that the vascular system is in a special way under the influence of the cerebral centers. An emotional blush and the pallor of fear are conspicuous examples of this fact. It is at least as easy to believe that the vascular changes are the result of the disturbance in the nerve elements as it is to regard them as its cause. The vasomotor nerves are peculiarly sensitive to sensory impressions that are felt as pain. No symptoms at all resembling those of migraine have been observed when the sympathetic system is distinctively diseased or deranged.

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[8] Gould, Geo. M.: Amer. Med., Jan. 21, 1905, p. 103

"The peculiar character of the visual impression affords strong reason for regarding it as the result of a tendency to functional derangement in the cells themselves. This opinion is supported by the fact that it may occur as an isolated symptom, and that it may be related to an actual visual impression, as is shown by the facts mentioned. Such an occurrence can have been due only to a primary functional disturbance of the cells themselves, and that which exists in one case probably exists in all.

"The hemiopia also is best explained by the assumption of deranged function in the occipital lobe, especiallysince right hemiopia may correspond to almost simultaneous aphasia, and the opinion is supported by the fact mentioned above that hemiopia is fixed by a lesion in the cuneus. When all has been said, mystery still envelops the mechanism of migraine."

Jolly,[9] whose clinical experience with this affection is similar to mine, thinks: (1) That the seat of scintillating scotoma in its most frequent, hemiopic form in all probability is located in the primary optic channels and more particularly in the optic tract or in the region of the external geniculate body; (2) that the binocular central, and the hemiopic scotomata which cross over the median line have their place of origin in the more peripheral part of the channel, probably in the region of the chiasm; and (3) that the purely monocular scotoma originates in the optic nerve or the retina.

### TREATMENT.

Gowers says in reference to the treatment of migraine: "If any errors in mode of life or defects in general health can be traced, their removal is the first and most essential step in treatment: of special importance is increased rest, regularity in meals and attention to diet; whatever is known to induce a paroxysm should be carefully avoided. Hot, crowded rooms are especially injurious. If inherited gout is probable, the regimen suitable for this should be adopted. In cases with conspicuous pallor in the early stage the drug that has most influence is nitroglycerin given regularly in the interval (migraine) twice or three times a day after food, beginning with a small dose 1/150, 1/180, 1/200 of a grain in 1 per cent. solution of alcohol."

During the attack absolute rest is essential; the recumbent posture is generally that in which the patient is most comfortable.

Some of my patients think that the attack is shortened by drinking iced water; others believe that spirits, coffee, tea and other beverages, taken immediately at the beginning of the attack produce a similar result. Others attribute the same result to taking from 10 to 20 drops of valerianate of menthol on a lump of sugar; while others, following the advice of Manz,[10] believe they have shortened the attack by gently pressing the eyeballs and rubbing the lids over the balls for a few seconds. In view of the great difference in the severity and in the duration of the attack at different times in the same person, it is impossible to say how much benefit was derived from any of the measures employed.

# INTESTINAL PERFORATION COMPLICATING TYPHOID FEVER.[*]

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Perforation of the bowel is one of the most serious complications which occurs in this disease, and it demands prompt attention first from the medical man, next from the surgeon. Before proceeding with the paper proper, I desire to report, in more or less detail, 12 operative cases which have occurred in my practice in the last twenty-one months.

These cases, in conjunction with 7 previously reported,[1] making a total of 19, have given eight recoveries, making a recovery percentage of 42.10.

CASE 1.—Referred to me by Drs. T. L. Disque and Lawrence Litchfield, Pittsburg, Pa. Perforation, peritonitis, death.

*Patient.*—G. K. H., male, aged about 24, had an attack of typhoid fever with a relapse in December, January and February, 1902 and 1903, respectively.

*History.*—The initial course of the fever was mild. Dr. Disque attended him in this attack and made his last visit Jan. 4, 1903. The patient soon after was following his usual vocation.

On January 26 Dr. Disque was called again to see him and found him with a relapse of the fever. This attack was a little more severe than the first.

On Feb. 3, 1903, Dr. Disque called to see him at 12 noon and found him suffering from a pain in the abdomen. The muscles of the abdomen were slightly rigid at this time. There was no change in the pulse nor in the temperature. The onset of pain occurred about 10 a. m., and the pain and tenderness increased during the afternoon. At 8 p. m. Dr. Litchfield saw the patient, in consultation with Dr. Disque, and the diagnosis of perforation was confirmed.

*Operation.*—I saw the patient about 9:30 p. m. of the same day and we operated on him at 12 midnight. Fourteen hours had elapsed since the onset of the pain. The abdomen was opened, under cocain anesthesia, in the right semilunar line. The abdomen contained a flocculent fluid and the perforation was found in the lower part of the ileum.

The perforation was closed by two tiers of continuous Lembert sutures of silk and the bowel returned to the abdomen. The abdominal cavity was then flushed out with warm normal salt solution. A large glass drain was inserted to the bottom of the pelvis and the abdominal incision closed around it.

*Result.*—The patient did fairly well for about forty-eight hours. He passed some gas by the bowel and the rigidity of the abdomen disappeared to some extent. On the third or fourth day, as he was not passing much gas by the rectum and as he was becoming somewhat distended, we decided to open the bowel at the site of the perforation. This was done under a little chloroform anesthesia. This did not avail, and he died on February 7th, from peritonitis.

The abdominal fluid at the time of operation contained white blood cells, a motile bacillus and a coccus. The bacilli under laboratory culture produced gas, and hence belongs to the colon group.

CASE 2.—Referred to me by Drs. A. Stanton and T. G. Simonton of Pittsburg, Pa. Perforation, peritonitis, death.

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[9] Jolley: Berliner klin. Wochft., No. 42, 1904, quoted from Nagel's Jahresbericht, 1902, p. 459.

[10] Manz: Quoted by Schmidt-Rimpler, Die Erkrankungen des Auges im Zusammenhang mit anderen Krankheiten, p. 108.

[*] Read before the Allegheny County Medical Society, 1904.

[1] Amer. Med., Sept. 6, 1902.

*Patient.*—G. S., male, aged 30; developed fever about March 4, 1903.

*History.*—He had one slight hemorrhage on March 18, otherwise he did not present symptoms showing anything unusual until the afternoon of March 19, when he complained of a severe pain in the abdomen. The maximum temperature had been up to this time 102 F. Dr. Stanton had insisted on the use of a bed pan, but the patient said he could not have evacuations that way, and on this date sat up to use the closet or a commode. *Immediately after doing this he had the* initial onset of pain, which was severe and continuous. This occurred between 3 and 4 p. m. Dr. Stanton saw him at 4 p. m. He complained greatly of the pain and was in collapse, with its accompanying symptoms, and a diagnosis of perforation was made at this time.

*Consultation.*—Dr. Simonton, who was called in consultation, saw the patient about 9:30 p. m., and they found the following conditions present: Temperature, 104; pulse, 100. There was severe pain in the abdomen, more acute on the right side, and much distension of the abdomen. The walls were rigid. The liver and splenic dullness was absent. The peristalsis was impaired. There was tenderness on pressure all over the abdomen, more marked on the right side. The facies were characteristic of peritonitis.

*Operation*—As it was impossible to operate on him at his room, removal to the hospital was necessary. This was done, and he arrived about 12:30 a. m. at Mercy Hospital, where I saw him for the first time. The ride in the ambulance did not change his condition. At 1 a. m., nine and a half hours after the onset of pain, as near as we could determine, we opened the abdomen under cocain anesthesia. The incision was made in the right semilunar line, on a level with the cecum. The cavity of the abdomen contained much fluid. The perforation, ⅛ of an inch in diameter, was found in the ileum 6 inches from the ileocecal valve. The perforation was closed by two tiers of silk Lembert sutures introduced transversely to the axis of the bowel, which was then returned to the abdominal cavity. The abdomen was then thoroughly flushed out with warm normal salt solution. A large glass drain was inserted to the bottom of the pelvis for drainage and the abdominal incision closed as much as possible by sutures. He was then returned to his bed, placed in Fowler's position. He died March 21, 30 hours after the time of the operation.

Case 3.—Referred to me by Dr. B. M. Dickinson of the medical staff of Mercy Hospital. Perforation, peritonitis, death.

*Patient.*—M. G., male, aged 27, was admitted to Mercy Hospital, April 28, 1903, with typhoid fever, having been sick 7 days previous to this time. I am not able to give the medical history and the symptoms of perforation in this case, as his record could not be found. From the appearance of his temperature chart I believe his infection was rather severe. The perforation occurred on May 5, 1903.

*Operation.*—Cocain anesthesia. Celiotomy was done on the afternoon of May 5, 1903. The perforation was found in the lower part of the ileum. The perforation was closed by two tiers of continuous silk sutures (Lembert) and the bowel returned to the abdomen. The abdomen was flushed out with warm normal salt solution and a glass drain inserted to the bottom of the pelvis. He died on May 6, a little more than 24 hours after operation. A bacillus and a coccus were found in the abdominal fluid.

Case 4.—Referred to me by Dr. J. A. McCullough, Steubenville, Ohio. Perforation of the appendix—recovery.

*Patient.*—A. L., male, aged about 30 years, had been ill with typhoid fever for about 3 weeks.

*History.*—On May 29, 1903, between 2 and 3 p. m., he had a sudden pain, severe and continuous, in the cecal region. He soon afterwards had a chill with a rise of the temperature. I saw the patient with Dr. McCullough about 12 midnight. At this time he still complained of the pain. There was tenderness on pressure over the cecum and the right rectus was somewhat rigid at this point. There was no tenderness over the remaining part of the abdomen. The peristalsis was normal and the liver dullness was present.

*Operation.*—May 30, 1 a. m. The abdomen was opened under cocain anesthesia in the right semilunar line on a level with the cecum. The abdominal cavity did not contain any fluid nor was the peritoneum inflamed. The appendix was bound down by adhesions and when delivered it was found to be perforated. A small abscess was present around the appendix, but there had been no escape of pus into the peritoneal cavity. The appendix was removed.

Gauze was inserted to the position formerly occupied by the appendix.

*Result.*—He made a tedious recovery. No peritonitis developed.

If this patient had been left alone a large abscess would certainly have developed.

Case 5.—Referred to me by Dr. B. M. Dickinson of the medical staff of Mercy Hospital. Perforation, peritonitis, pneumonia, death.

*Patient.*—B. G., a Pole, male, aged 21, was admitted to Mercy Hospital on Sept. 18, 1903, suffering from typhoid fever.

*History.*—He said he had been sick one week. On the evening of Sept. 19, one day after admission, he complained of a pain in the abdomen. This soon passed away and his history relates that he soon fell asleep. This pain occurred probably about 10 p. m., as his temperature chart shows he had a chill at this time. His temperature was then 104 and pulse 100. The next morning he again complained of pain in the abdomen. The temperature was 99, a drop of 5 degrees in 12 hours. The pulse was 100 and he was sweating profusely. His abdomen was rigid, distended, and peristalsis was absent. A laparotomy was performed under cocain anesthesia about 10 a. m. on September 20. The incision was made in the right semilunar line on a level with the cecum. The perforation was found in the ileum 8 inches from the ileocecal valve. It was closed by a purse-string suture first over which two tiers of silk Lembert sutures were introduced. The abdomen was then thoroughly flushed out with warm normal salt solution.

*Result.*—The hospital record of this patient is brief and I can not give the facts from memory. He was apparently doing nicely but pneumonia developed and he died on September 25, five days after the operation.

No organisms were found in the abdominal fluid and no growth occurred from culture.

Case 6.—Referred to me by Dr. I. J. Moyer of the medical staff of Mercy Hospital. Perforation, peritonitis, recovery.

*Patient.*—J. N., male, aged 21, was admitted to Mercy Hospital November 19, 1903, with typhoid fever.

*History.*—His mother, one brother and five sisters living; his father died of heart disease and three sisters died in infancy. He had inflammation of the lungs when a boy of six and was one year in recovery. He had been ill subsequently from the same trouble and has never been strong.

*Present Illness.*—He was taken sick November 7, with headache, insomnia, pain in the back and in the legs, anorexia and diarrhea, having 6 or 7 stools daily. He was much emaciated. The spleen was enlarged and tender. The heart and kidneys were normal. A Widal test taken a few days after admission reported back negative. He had five or six severe hemorrhages from November 26 to November 30. At 10 p. m. November 30, the twenty-third day of the disease, he had a severe pain in the lower right quadrant of the abdomen. This man always complained of every pain very much and so little attention was attached to this important symptom. He passed a very restless night. He had a chill at 4 a. m. lasting twenty minutes. At 10 a. m. the symptoms had increased. The muscles of the abdomen were rigid but not pronounced. Peristalsis could be heard, the quality and quantity not marked. The abdomen was scaphoid, and up to this time there had been no appreciable change in the pulse or temperature.

*Operation.*—December 1, 1 p. m. Celiotomy, ether narcosis. Thirteen hours had elapsed since the onset of the pain. An incision two inches long was made in the right semilunar line on a level with the cecum. The abdominal cavity contained a flocculent fluid. The perforation, ⅛ of an inch in diameter, was found in the ileum, four inches from the ileocecal valve. The opening in the bowel was closed by two tiers of continuous silk sutures (Lembert), after which the bowel was returned to the abdominal cavity. Large quantities of warm normal salt solution were then used to flush out the cavity of the abdomen. A large glass drain was inserted to the bottom of the pelvis for drainage and the patient removed to his bed, which was placed in Fowler's position.

*Result.*—Examination of the fluid obtained from the abdomen at the time of operation showed it to contain, beside blood cells, only a micrococcus. At 7 p. m., the day of operation, the bed was placed in a horizontal position for the reason that the pulse had gone steadily upward. Five minutes af er the bed was lowered the pulse came down from 138 to 124. The glass drainage tube was also removed at this time, some gauze being first inserted through the tube to serve as drainage.

Enemas given at varying intervals during the first twenty-four hours always came away with much flatus and some fecal matter.

He made a tedious recovery. When he left the hospital, Jan. 21, 1904, to go to his home in Russia, he had an abdominal sinus four or five inches in depth.

I have since heard that he had entirely recovered.

CASE 7.—Referred to me by Dr. B. B. Wood, Pittsburg, Pa. Perforation, peritonitis, death.

*Patient.*—F. W. M., male, aged 24, first consulted Dr. Wood Dec. 27, 1903. He had been complaining for about ten days. He had a cough, with profuse night sweats at this time. Dr. Wood is of the opinion that he was a tubercular subject.

*History.*—Typhoid fever developed, which ran the regular course. January 13, at 3 p. m., he had a hemorrhage, and he passed some blood during the night, having several bloody stools. At 7 a. m. on January 14 he was weak from the loss of blood. At this time Dr. Wood saw no indication of perforation. At 9 a. m. his condition was changed. The abdomen was somewhat rigid and he had the expression of one suffering from shock. I met Dr. Wood in consultation about 5:30 p. m. at the patient's home. At this time he had the signs of peritonitis. His abdomen was rigid and peristalsis was faint. His pulse was weak and he was perspiring freely. It was not advisable to perform the operation at his home, so we transported him to Mercy Hospital. It was recognized that this was not a good case for operation, but as he did not have any chances without operative interference we decided to give this chance.

*Operation.*—7 p. m.; celiotomy; cocain anesthesia. Not more than twelve hours had elapsed since the perforation had occurred. An incision was made in the right semilunar line on a level with the cecum. The perforation was found in the ileum within eight inches of the ileocecal valve. It was closed by two tiers of continuous-silk sutures (Lembert) and the bowel returned to the abdomen. The cavity of the abdomen was then flushed out with warm normal salt solution. A glass drain was introduced to the bottom of the pelvis and the abdominal incision closed as much as possible. He went into collapse on the table and it was necessary to give a saline transfusion. He reacted but little and died about 11 p. m.

CASE 8.—Referred to me by Dr. G. T. Ribetti, Pittsburg, Pa. Perforation, peritonitis, second perforation, death.

*Patient.*—S. H., male, aged 15 years, became ill with typhoid fever on June 5, 1903. He had a very mild attack.

*History.*—The temperature was not high at any time, and he did not have any bad symptoms whatever until June 26, exactly fifteen days after the onset of the fever. At 1 p. m. of this date he had a severe pain in the abdomen, accompanied by some rigidity of the right rectus muscle. The pain and the rigidity disappeared within two hours. No morphia was given. He was admitted to the hospital early the next morning with the following symptoms: The abdomen was rigid. Pain was present on pressure over the abdomen. The peristalsis was not entirely absent and he had the facies of peritonitis. Nineteen hours elapsed after the onset of the pain before celiotomy was performed.

*Operation.*—The operation was performed under cocain anesthesia. An incision was made through the right semilunar line on a level with the cecum. The abdomen contained a large quantity of a flocculent fluid. The perforation was found in the ileum, eight inches from the ileocecal valve. The opening in the bowel was closed by two tiers of continuous silk sutures (Lembert) and returned to the abdominal cavity. The abdominal cavity was then thoroughly flushed out with warm normal salt solution. A large glass drain was inserted to the bottom of the pelvis for drainage. He was then returned to his bed, which was placed in Fowler's position.

The fluid in the abdomen at the time of operation contained a diplococcus, many leucocytes and granular material.

*Result.*—The glass drain was removed the first day after operation and the head of the bed lowered at the same time. Before removing the tube a strip of gauze was inserted through the tube to act as drainage. The patient at once began to improve. He was soon passing much flatus, with and without the aid of enemas. He was troubled with some emesis for several days, but soon was able to take liquid nourishment. For ten days he did well. By this time he was gaining in weight, apparently; his color good; his bowels moved regularly and his abdomen was as soft as a baby's. On June 30 he complained of pain in the chest, and pleurisy and catarrhal pneumonia developed. Coincident with this unfortunate complication, a fecal fistula occurred, and peritonitis again became a factor in his case. He died July 2.

*Autopsy.*—Either complication would make the prognosis very serious. I thought, and naturally believe, that the fecal fistula was due to the opening of the perforation on account of the tearing out of the sutures, and was much surprised when a restricted autopsy, done by Dr. W. H. Ingram,[2] showed the cavity of the abdomen to contain fecal matter which came from a second perforation high up in the jejunum. The perforation was ½ inch in diameter, the largest I have seen. The sutures in the bowel at the site of the first perforation were found to be intact.

CASE 9.—Referred to me by Dr. B. M. Dickinson of the medical staff of Mercy Hospital. Perforation, peritonitis, second perforation, fecal fistula, recovery.

*Patient.*—J. F., male, aged 29; was admitted to Mercy Hospital June 22, 1904, with typhoid fever.

*History.*—The fever had evidently commenced two weeks before, with anorexia and malaise. The week previous to admission he had several liquid stools daily. During the first week of treatment in the hospital he had three hemorrhages from the bowels; the last one occurred the day before the perforation. Otherwise he did not have any unusual symptoms. On July 1, at 3:45 p. m., the twenty-second day of the disease, he had a severe pain in the cecal region, which came on suddenly and was continuous. Dr. J. A. Reidy, medical resident, saw him soon after this occurred, and made a diagnosis of perforation. At this time he was tender all over the abdomen on pressure; the tenderness was more acute on the right side. The abdomen was flat but rigid. Peristalsis was present but not marked. Liver dullness diminished. I saw him between 5 and 6 p. m. and he still presented the same symptoms, but a little more marked, and confirmed Dr. Reidy's diagnosis. Soon after perforation occurred his temperature was 96.2 degrees. At 7 p. m his temperature was 102.6 and his pulse was 126.

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[2] Professor of Histology, Pathology and Bacteriology, Western University of Pennsylvania.

*Operation.*—Cocain anesthesia; 3¾ hours after onset of pain we made the usual incision in the right semilunar line. The perforation, ⅛ of an inch in diameter, was found in the ileum, six inches from the ileocecal valve. The opening was first closed by a purse-string suture of silk, the opening in the bowel being pushed into the lumen as the suture was drawn tight, over which two or three interrupted Lembert sutures, also of silk, were introduced.

Another ulcer, about four inches from the cecum was observed, but as the serosa over it seemed to be in good condition I did not think it necessary to invert it by suture, as is sometimes required. The abdominal cavity, which was filled with a turbid fluid, was washed out with warm normal salt solution. The portion of the bowel containing the perforation, although now closed by sutures, was anchored by a continuous silk suture to the peritoneum at the upper angle of the incision through the abdominal wall. A large glass drain was then inserted to the bottom of the pelvis. No sutures were introduced to close the abdominal incision. He was then removed to his bed with its head slightly elevated, but I did not keep him up very long, as his pulse was very weak and rapid, 168 to the minute.

*Result.*—The next day at 11 a. m. a strip of sterile gauze was inserted into the glass drainage tube and the tube withdrawn. I did this so early in this case for the reason that the fluid in the abdomen at the time of operation contained only blood cells and proved sterile under culture. The second day after operation I noticed that the gauze which had been introduced the day before was stained with fecal matter, and the gauze drain was then removed. This fecal matter did not come from the perforation closed by sutures, as it was intact, but must have come from a second perforation and most likely from the ulcer previously described. Although fecal matter in large quantities was constantly in contact with the site of the sutures over perforation, it never opened. The fecal fistula, which closed about October 1, opened October 18. The opening is, however, small. The resulting scar at site of abdominal incision is firm and shows no sign of hernia.

Case 10.—The patient was referred to me by Dr. Karl Emmerling, Pittsburg, Pa. *Perforation, peritonitis, fecal fistula, recovery.*

*Patient.*—Miss A. M., schoolgirl, aged 14, was taken sick on July 3, and had an attack of typhoid fever with no unusual symptoms until July 31.

*History.*—The course of the fever would indicate that the infection was of a mild form. At 9 p. m. on July 31, the twenty-eighth day of the disease, she had a severe and continuous pain on the right side of the abdomen, in the region of the cecum. The pain came on suddenly and occurred just after a free movement of the bowels. At 11 p. m. I saw her, in consultation with Dr. Emmerling. She still complained of much pain and presented the following symptoms: Her features were pale and pinched. The pulse was about 120 and the temperature was 101 degrees. The abdomen was flat. The walls were rigid. Tenderness was present on pressure all over the abdomen, but it was more acute on the right side. Peristalsis of a fair character was present. Liver dullness was absent in the nipple line. The patient having the above symptoms, we did not hesitate to make a diagnosis of perforation and advised immediate operation, which we performed as soon as we could move the patient to Mercy Hospital.

*Operation.*—Ether. Four hours after the onset of pain we made an incision two inches long through the right semilunar line on a level with the cecum. The perforation, ⅛ of an inch in diameter, was found in the ileum, eight inches from the ileocecal valve. The perforation was treated as in the previous case. The portion of the bowel containing the perforation was anchored in the upper angle of the wound, as also in the previous case. The abdominal cavity, which contained a flocculent and turbid fluid, was washed out with warm normal salt solution and a large glass drainage tube inserted at the bottom of the pelvis. No sutures were introduced to close the *abdominal incision. Patient* was removed to bed, which was placed in Fowler's position. The drainage tube was *removed in a few days.*

*Result.*—From the first she did well. On the seventh day a fistula developed, caused by the opening of the sutures closing the perforation. A small amount of fecal matter escaped daily. At the present time the opening is almost closed and will be entirely so in a short time. During her *convalescence she had* some elevation of temperature, which lasted for *three or four* weeks. This temperature was most likely due to a typhoid reinfection, no other condition being *present to produce it.* The abdominal fluid contained a coccus and a motile bacillus. A mold grew on culture.

Case 11.—Referred to me by Dr. J. G. Stewart, Pitcairn, Pa. *Perforation, peritonitis, recovery.*

*Patient.*—M. F., male, aged 19; the first symptoms of fever appeared on Aug. 4, 1904.

*History.*—He had a severe infection, but did not have any complications with the exception of three slight hemorrhages (on August 31, September 2 and September 4, respectively) *until* Sept. 6, 1904. On this date, at 11 a. m., he had a severe pain in the lower right quadrant of his abdomen. The pain was excruciating in character. It came on suddenly and was continuous. Dr. Stewart saw him at 12 noon. The pain was severe and continuous and was diffused over the abdomen. Morphia was administered for the pain, but perforation was suspected. Dr. Stewart saw the patient again at *3* p. m., and made absolute diagnosis of perforation. At *this time* the patient was in collapse. The temperature was 94 and the pulse was weak and rapid and he had the facies so characteristic of shock. I saw him, in consultation with *Drs J. G* Stewart of Pitcairn and *G. H.* Beswick of Wilmerding, Pa., about 7 p. m. At this time he had recovered from *the shock, that is,* his temperature had risen and he had a pulse of 120. He was very tender all over the abdomen. The muscles were rigid. Peristalsis was present but of no great quantity or quality. The liver dullness was absent in the nipple line. His features were characteristic of peritonitis and shock.

*Operation.*—8 p. m.; cocain (locally) and chloroform narcosis. Morphia, ¼ gr., had been previously given. This was the thirtieth day of the disease and nine hours had elapsed since the onset of pain. The usual incision was made in the right semilunar line. Two perforations were found both of them in the ileum; one about eight inches from the ileocecal valve, the other about seven inches further along. A third ulcer was apparently almost through the walls of the bowel and this ulcer was inverted into the bowel by means of a purse-string suture of silk and which was reinforced by two or three interrupted Lembert sutures (silk). The first ulcer, nearest the cecum was closed as in Case 9. The second perforation was treated in almost a like manner. This one presented a peculiar appearance. When first discovered it had a white necrotic area at the apex of the ulcer and which, on the manipulations of the bowel necessary in introducing the sutures, caused this necrotic area to become detached, leaving the opening similar to the appearance of perforations of later stages. This ulcer had not advanced to the final state of perforation, but through the necrotic area; organisms present in the bowel could easily pass and set up peritonitis.

The first perforation was one-eighth of an inch in diameter; the second perforation would have the same diameter had it gone on to the final state. The bowel at the site of perforation nearest to the cecum was anchored to the peritoneum at the upper angle of the abdominal incision, as described in Case 9. A large quantity of warm normal salt solution was then used to flush out the cavity of the abdomen. A large glass drainage tube was inserted to the bottom of the pelvis for drainage, a wick drain being used for the purpose. On September 9.

the third day after the operation, the bowel was opened to aid the escape of gas and fecal matter. He was at this time passing gas by the rectum, but he was also becoming more distended, and, as we had anchored the bowel for just such a complication following operation, the procedure was carried out.

*Result.*—He is making a good recovery. About three weeks after the operation he had a rise in temperature to 103 degrees, but it gradually came down and he is now convalescing. The fistula remains open. The cause of the temperature was probably due to a typhoid reinfection.

Case 12.—Referred to me by Dr. B. M. Dickinson of the Mercy Hospital. Perforation, peritonitis, death.

*Patient.*—G. P. M., male, aged 24, was admitted to Mercy Hospital on Sept. 6, 1904, with the symptoms of typhoid fever well established.

*History.*—He had been sick for two weeks before admission. The infection was severe in this case. The nervous symptoms were pronounced at times and he had seven distinct and large hemorrhages in six days. He was troubled with emesis and hiccough, probably due to the use of morphia, which had been given to control the hemorrhages.

On September 22, about 7 a. m., he complained of pain in the lower right quadrant of the abdomen. The pain was not very severe at first and was referred to the end of the penis. There was no appreciable change in the pulse or temperature at this time.

At 1 p. m., when I saw him, in consultation with Dr. Dickinson, his pulse had increased 20 beats and was running at the rate of 130, and his temperature had gone up 1.8 degrees, being 102.2 degrees. There was tenderness on deep pressure all over the abdomen, but the pain was more acute in the lower right quadrant of abdomen. The muscles of the abdomen were slightly rigid. The peristalsis was good and the liver dullness was not obliterated. Dr. Dickinson had made a diagnosis of perforation and nothing remained to do but operate.

*Operation.*—Chloroform narcosis; 2 p. m. This was the thirtieth day of the disease, with the perforation occurring seven hours previous to this time, as nearly as we could determine. A two-inch incision was made in the right semilunar line, on a level with the cecum. Search was first made for the cecum and appendix, which were found not to be diseased. The ileum was next exposed and the perforation was found about twelve inches from the ileocecal valve. The perforation was closed as described in Case 9. Two ulcers in the bowel, one on either side of the site of the perforation, a few inches away, were turned in by a purse-string suture of silk.

The bowel at the site of perforation was then anchored to the peritoneum at the upper angle of incision, as in Case 9. The abdomen was then thoroughly flushed out with warm normal salt solution and a large glass drain inserted to the bottom of the pelvis. Two pieces of gauze were introduced in the drainage tube to act as a wick drain. He was then removed to his bed, which was placed in a modified Fowler's position. Immediately after operation, 3 p. m., his pulse was 140 and the temperature by the rectum was 105.2 degrees. The temperature gradually came down in 48 hours to 98.2 degrees, by axilla.

*Result.*—He was at times delirious and hiccough and emesis were troublesome symptoms at intervals. He was always able to pass flatus with the aid of enemas.

The temperature remained about 100 degrees all the time. His pulse averaged 120 beats to the minute. His abdomen became almost free from pain on pressure and fair peristalsis could always be heard, apparently showing the peritonitis to be lessening. He died on September 26, however, the fifth day after operation. No autopsy was obtained. The toxemia, due to the fever itself, seemed to be a prominent factor for his death.

### MORBID ANATOMY OF THE ULCER.

It is obvious to all that the cause of perforation is the penetration of all the coats of bowel wall by the ulcer, the pathologic lesion in typhoid, but I wish to present what my observation has led me to believe is the process causing the complete penetration of the bowel.

To understand the process more thoroughly a review of the morbid anatomy of the ulcer may not be out of place.

The ulcers arise from the pathologic process which takes place in the lymphatic follicles known as the solitary glands and in the agminated glands known as Peyer's patches. The process is most marked in the lower end of the ileum, but occurs also in the cecum, the appendix, the jejunum, the rectum, the colon, and, according to Pepper, it has been observed in the duodenum and stomach.

First comes the stage of infiltration of the lymphoid glands and, if resolution is not established, the stage of necrosis follows; then ulceration and cicatrization come in sequence. Wherever inflammation exists the blood vessels become enlarged, tortuous and engorged with leucocytes. This occurs around the lesion just referred to, and begins when infiltration starts. The tissues beyond the area of the lymphoid glands are involved, extending over the edges of the lymphoid follicles to the healthy mucous membrane, and even into the muscular coats of the bowel. When one of these lymphoid follicles has gone on to the stage of ulceration, and the process has extended into the muscular coats, the serosa and the remaining coats of the bowel at apex of ulcer become deficient in blood supply, gradually become necrotic, and perforation is the result.

I have observed that the coats of the intestines over the site of a non-perforated ulcer are always darker in color than elsewhere, thus showing that the circulation is impaired.

The deficiency of the blood supply is due to two causes:

1. The extreme degree of inflammation with the accompanying swelling of the tissues causing a slowing and stagnation of the blood current.
2. The position of the ulcer. The ulcer of more or less size and depth being on the free border of the bowel and opposite the blood supply, would, by its own position, retard the blood current to the thin covering of the bowel over the ulcer where it is most needed. These two conditions, always present, are factors, it seems to me, in the penetration of all of the bowel coats by the ulcer.

### DIAGNOSIS OF PERFORATION.

Highly congested and inflamed tissues are always very friable and it appears strange that we do not have more perforations under such conditions. The diagnosis of perforation is usually easy. The symptoms are so characteristic that even when the patient is a foreigner or is delirious the diagnosis can be made just as well. The symptoms are, as a rule, the same.

*Symptoms.*—The typical symptoms are as follows: Pain comes on suddenly, and is severe and continuous, although it may occasionally be intermittent. It is first noticed usually in the right cecal region and may be referred to the external genitals. The whole abdomen is usually tender on pressure. The right rectus becomes rigid, and the rigidity later extends to the left rectus. The peristalis is not much impaired at the time; in fact, it may be increased for a short period, but later it is lessened and finally is absent. Liver dullness in the nipple line is lost at varying times, depending on the distension of the bowel and the amount of free gas in the cavity of the abdomen.

The facies is characteristic of one suffering severe pain and possibly shock. The shock is characterized by a blanched countenance, a pinched nose and a feeble, rapid pulse, and a subnormal temperature may be present. In my experience, in but few cases has there been a drop of temperature or a perceptible change in the pulse at the time of perforation. Slight nausea or vomiting is usually present. Whether the temperature has fallen or not it soon rises. This is due to a spreading peritonitis. The pulse increases in frequency, the rigidity of the abdomen and the tenderness is more marked, and the facies is one of peritonitis. The patient may have several evacuations of the bowels after the occurrence of perforation.

As time elapses after perforation has occurred, all the symptoms increase in severity. The symptoms are then due to a peritonitis. The leucocytic count may be of some value in making the diagnosis, but not much importance should be attached to this procedure, and, in any case, with the above symptoms, confirmation is not needed, even if the leucocytic count coincides with the symptoms.

In cases where hemorrhages occur it would be well to be on the watch for perforations. Four of the twelve cases just reported had hemorrhages.

The three cardinal symptoms are, however, the sudden pain, the rigidity and the tenderness of the abdomen to pressure. These three symptoms being present *in any case of typhoid fever, operation is indicated and* demanded.

Occasionally if the patient is seen soon after the occurrence of the perforation the rigidity will only be detected on deep palpation, and the tenderness will only be found over the site of the perforation. This being so, the sudden pain is the only symptom on which to make an early diagnosis unless a careful examination is made for rigidity and tenderness. These three symptoms should be firmly fixed in mind. The other symptoms, when present, should not be disregarded. They are, however, almost all due to the peritonitis.

*Instructions to Attendants.*—The parents, attendants or nurses who have charge of the patient should be instructed to notify the physician when any sudden, severe or unusual pain occurs in the abdomen. It is well to have a card with the symptoms of perforation on it; the card to be given the nurse or attendant of the patient.

Dr. Emmerling, in case 10, instructed the mother to notify him in case any sudden pain occurred. In this instance we saw the patient in consultation exactly two hours after the onset of pain, and the diagnosis was made at that time.

By following this plan it is possible to make the diagnosis of perforation early and to have prompt surgical intervention. Nothing is gained by waiting. Even if no cause is found for the symptom once in a while, it is better to err on that side than to lose lives by waiting for more pronounced symptoms.

*Other Complications.*—There are a few other complications occurring in the course of typhoid fever which give symptoms almost identical with perforation, such as the softened and ruptured mesenteric glands. softening of the spleen and rupture of the gall bladder due to ulceration. The treatment is practically the same as for perforation and will

PROGNOSIS.

The prognosis is always serious. More so than from other causes of perforations for the reason that the complication comes in typhoid fever at a time when the normal powers of resistance are weakened by two or three weeks of previous illness. The final result, that is, recovery or death, depends on several factors.

First—The physical condition of the patient before the advent of the fever.

Second—The character of the typhoid infection, whether it is mild or severe.

Third—Other previous complications.

Fourth—The organisms found in abdominal fluid after perforation.

Fifth—The time of operation after the occurrence of the perforation.

*Patients are occasionally heard of who have the symptoms of perforation and yet recover without operation*, but their number is small. No one claims that more than 5 per cent. recover without operative interference.

This class of cases, "recovery without operation," can be subdivided as follows:

First—Those having abscess formation.

Second—Those without abscess formation.

Recovery at times occurs in cases of the first division. It is my belief that the abscess cases are usually the result of ulceration and perforation of the appendix. The appendix being a more fixed part of the bowel than any other in which perforations take place and so frequently the cause of abscess formation, this would seem reasonable. *Of the second division, in which the patients* simply recover, I believe that these are not cases of perforation and that the symptoms present are due to some other cause. When perforation occurs in any part of the intestine except in the appendix I believe they very rarely recover without operative interference. It is possible, but not likely.

TREATMENT.

The only treatment is operative. Prompt surgical intervention should be done early unless there is a great lowering of the temperature, when time should be given for the patient to react.

When the operation is done within six hours after perforation occurs it is the belief of the writer that we will have a recovery of 50 per cent.

The closing of the perforation is naturally the first thing to be done. There is usually some difficulty in this procedure because the bowel is very friable on account of the great degree of inflammation at this point. Of late I have first used a purse-string suture, over which I introduce one or two tiers of continuous Lembert sutures, always of silk.

The Lembert sutures should be introduced transversely to the long axis of the bowel. In my last four cases, after closing the perforation, I have made use of another procedure which has saved the lives of two, possibly of three, of the four patients. This procedure in dealing with the closed perforation of the intestine is original with me, although it has most likely been made use of by other surgeons. It consists in simply anchoring the bowel at the site of the perforation to the peritoneum at the upper angle of the incision through the walls of the abdomen. This should be done so that all the sutures introduced to close the perforation are extraperitoneal. The advantages of this over the old method of returning the bowel to the abdomen are great. They are as follows:

First. The bowel can not return to its normal position within the cavity of the abdomen, which, by reason of the perforation, is the site of the most intense inflammation of the adjacent peritoneum and intestines. In the old method, when the bowel is returned, it will come to rest at this point and bathe the sutures in pus, with the consequence that the sutures are more liable to pull out.

Second. Acute obstruction is not so liable to follow for the same reason.

Third. The contents of the bowel will flow outside of the abdomen and not inside in case the sutures in the bowel tear out.

Fourth. An artificial anus can easily be made should partial or complete obstruction develop.

The toilet of the peritoneal cavity is important. The constant repetition of the procedure carried out in every reported case was principally to impress this fact. Every part of the greater peritoneal cavity from the pelvis to the diaphragm should be thoroughly flushed out with warm normal salt solution. The flushing should be continued until the fluid coming out is clear.

There is always fluid in the abdominal cavity following a perforation. Sometimes it is almost amber colored, like ascitic fluid. At other times it is flocculent, dirty and bloody, and may contain bands of organized lymph and fecal matter. To leave this in the abdominal cavity is a serious mistake. It is only a pabulum for micro-organisms when present. The fluid can not be removed by sponges at all thoroughly, and flushing is the only procedure to follow. After flushing, dry the abdominal cavity by means of sponges or by means of a suction syringe, or both.

When this is done the cavity will be in as nearly a normal condition as it is possible to make it under the circumstances.

The insertion of a large glass drainage tube to the bottom of the pelvis is for the purpose of removing any fluid collecting there.

The patient being placed in Fowler's position, the fluid can not go elsewhere than in the pelvis. As a rule, there is but little fluid to remove after all of the salt solution is out.

The drainage tube or gauze is removed as soon as possible, depending on the amount of fluid and the nature of the organisms present at the time of operation.

Fecal fistulas are not pleasant nor to be desired by either the patient or the surgeon, but do not give much trouble, and usually close spontaneously.

I am deeply indebted to Dr. A. Leteve[3] for the interest shown in making many microscopic examinations and cultures of the abdominal fluid. This procedure is very necessary. It aids in the after-treatment, and it also aids in making a more certain prognosis.

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Medicine as a science and as an art ranks higher than it has ever done. Physicians and surgeons win victories over disease and death of which our predecessors never dreamed. We have progressed and the future holds for us even better things. Let us have done with the prevailing pessimism; it is an infection which has been sown into our ranks from the ranks of unbelievers. We know better things of medicine than they and we must not let the unbelief of an outside few deter us in our onward and upward march.—*Western Medical Review.*

# THE EXTRACTION OF THE INTRACELLULAR TOXIN OF THE COLON BACILLUS.

## WITH A PRELIMINARY STATEMENT CONCERNING ITS PHYSICAL AND CHEMICAL PROPERTIES.

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### INTRODUCTION.

The large tanks for the growth of bacteria in mass in use for some years in the hygienic laboratory of the University of Michigan permit the collection of bacterial cell substance in large amount and thus afford opportunity for the study of cellular chemistry not obtainable in any other way. Already several researches along this line have been carried on in this laboratory, and recently Dr. Vaughan has published his theory of the composition of bacterial cells and the principles of immunity developed from these studies. It is the purpose of this paper to detail some of the work which has been done recently in the extraction of bacterial intracellular toxins, with special reference to the toxin of the colon bacillus, and to give some preliminary statements concerning its physical and chemical properties. The method for the extraction of the toxin has been followed repeatedly and with several species of bacteria, so that now it can be given as reliable in results, and it is believed suited for general application.

### EXTRACTION OF TOXIN.

The details of the method for extracting the bacterial intracellular toxins may be stated as follows: The organism to be studied is grown on 3 per cent. agar on the large tanks for from ten to fourteen days at room temperature. When the tanks are kept at 38 degrees centigrade, a shorter time may suffice to give the best yield. When the growth has ripened, the layer of bacterial substance is detached from the agar with glass rakes and drawn into flasks by means of suction pumps. Should the growth be too dry to be removed in this way, sufficient 95 per cent. alcohol is added to permit the suspended germ substance to pass into the flask. The flasks are emptied into large precipitating jars and the germ substance washed several times with 95 per cent. alcohol by decantation. It is then covered with absolute alcohol, and is allowed to stand for several hours with frequent stirring, when it is collected on a filter and all the alcohol is allowed to drain off thoroughly. Prolonged contact with absolute alcohol hardens the cell substance and renders the subsequent extraction of the toxin difficult. The cellular substance is now placed in large Soxhlets and extracted with ether, after which it is air dried, pulverized and weighed. The process thus far is preparatory. As obtained in this manner the dry germ powder kills guinea-pigs in doses of 1 to 40,000 body weight within twelve hours.

The germ substance, thus purified, is boiled for one hour on the water-bath, under a reflux condenser, with from fifteen to twenty-five times its weight of absolute alcohol, in which 2 per cent. by weight of pure sodium hydrate had been previously dissolved. It is essential that the alcohol used in this extraction should be absolute, and that every trace of water in the germ substance should be removed before the extraction of the toxin is undertaken. If this point be neglected the toxin will be obtained in a sticky, gummy mass which does not give satisfactory results. By this process the germ substance is divided into two distinct parts. From the golden brown alcoholic solution there is obtained a powder representing about one-third of the weight of the original dry germ powder, which is very toxic, killing guinea-pigs in small doses in about thirty minutes, while the residue insoluble in alcohol represents about two-thirds of the weight of the germ substance and is not poisonous. The germ substance does not yield all its toxin, as a rule, until the extraction with sodium hydrate in alcohol has been repeated at least three times. Boiling the germ substance thus with sodium hydrate in alcohol splits the cells along certain definite lines of cleavage, for when the extraction has been repeated several times, boiling for one hour at each extraction, it will be found that all the toxin is dissolved in the alcohol, that no more can be split off, and that the portion insoluble in the alcohol is now non-toxic. After these portions have been separated by filtration, the filtrate, which contains the toxin dissolved in absolute alcohol, and is alkaline in reaction, is neutralized with hydrochloric acid. This throws down practically all the base and acid as sodium chlorid, which is removed by filtration. There is thus obtained a solution of the toxic part of the germ cell in absolute alcohol. This is evaporated in vacuo at a temperature of 40 C., redissolved in absolute alcohol to get rid of remaining traces of sodium chlorid and again evaporated in vacuo at 40 C. The toxic part of the cell substance obtained in this way, provided there is no water present, forms a brown scale on the dish which may be pulverized to a brownish powder that is toxic in very small doses.

It is believed that this poisonous substance is an integral part of the bacterial cell split off from it by the alkali, and that it is a synthetic product formed by the germ during its growth. In order to demonstrate this point the colon germ was grown for seven days in flasks containing Fraenkel's modification of Uschinsky's medium of the following composition:

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| Water | 10,000 parts. |
| Sodium chlorid | 50 parts. |
| Asparagin | 34 parts. |
| Ammonium lactate | 63 parts. |
| Di-sodium hydrogen phosphate | 20 parts. |

After a week's development the contents of the flasks were poured into from two to three volumes of 95 per cent. alcohol. The precipitated substance was filtered out and put into absolute alcohol. Filtered from this it was extracted in Soxhlet with ether, then dried and powdered. From this germ substance the process for the extraction of a poisonous body with 2 per cent. sodium hydrate in absolute alcohol was carried out as given above. On concentration of the alcoholic solution there was obtained a poisonous body just as from the extraction of germ substance grown on agar. The same dose kills guinea-pigs in thirty minutes, with characteristic symptoms of colon toxin. Also, the toxin obtained from germ grown on Fraenkel's modification of Uschinsky's medium gives all the proteid color tests hereafter described as being obtained from colon toxin from agar-grown cultures. This demonstrates the fact that the toxic body is an integral part of the germ split off from the cell by alkali; and in consideration of the apparent proteid nature of the toxic part, set forth in detail subsequently, it is evident that the bacterial cell must synthetically produce this proteid body during its growth from the chemical compounds of the medium.

### PROPERTIES OF THE CRUDE SOLUBLE TOXIN.

The poison split off from the cell substance by the method above given is designated as the crude soluble toxin; "crude" because it is undoubtedly a mixture of a number of substances, and "soluble" in contradistinction to the germ substance from which it has been obtained and which is insoluble.

The brownish toxic powder from the colon bacillus is very hydroscopic and dissolves freely in water, forming an opalescent solution, acid in reaction, and pale yellow to golden brown in color, according to its strength. The opalescence is removed by filtration through a hardened filter, but the toxicity of the solution is not thereby diminished, showing that a small but non-toxic part of the powder is insoluble in water, but the larger part is so freely soluble that for practical purposes the opalescence may be disregarded. On neutralizing the opalescent solution with sodium hydrate it becomes clear; on neutralizing with sodium bicarbonate, a brownish non-toxic precipitate is formed, small in amount, and when this is removed by filtration the solution obtained is clear and highly toxic. In absolute alcohol the solution is perfectly clear. After long standing in an absolute alcohol solution, there is a small part that settles out and becomes insoluble; also, after repeated evaporation to dryness and resolution in absolute alcohol, a small part each time becomes insoluble. The powder is insoluble in ether, chloroform and petroleum ether. Each of these will remove a very small amount of fatty substance, which is non-toxic, but they do not dissolve an appreciable amount of the poison. The powder is soluble in strong mineral acids, remaining clear on being boiled and on diluting with water. A few drops of mineral acid, however, added to a water solution, causes a precipitate. This would seem to indicate that the acidity of the water solution of the toxin is caused by the presence of some organic acid.

Although the toxic powder is so readily soluble in absolute alcohol, the tests point to the presence of an albuminous or proteid body. Practically all the proteid color reactions are obtained, with the exception of Molisch's test. It is interesting, too, that the part separating out from an alcoholic solution on long standing gives none of the proteid color reactions, indicating that the proteid part is permanently soluble in absolute alcohol. The Millon's reaction shows most perfectly, even in dilute solution, as does also the biuret test. Heated with strong nitric acid a clear pale yellow solution is formed, which, when ammonia to excess is added, turns to a deep orange color, thus giving the xanthoproteic test. The reaction of Adamkiewicz is positive, for when the substance is heated with acetic acid and sulphuric acid is added, a beautiful violet color develops. On boiling with concentrated hydrochloric acid, to which a drop of concentrated sulphuric acid has been added, the powder passes into solution and a violet color results, thus giving Lieberman's test. The reaction of Adamkiewicz is supposed to be referable to the presence in the proteid molecule of aromatic groups, together with a carbohydrate radicle, while Lieberman's reaction is conceded to depend on the formation of furfurol, and, although the toxic substance gives both these reactions perfectly, it does not respond to Molisch's test, which is given by the formation of furfurol on the splitting up of a carbohydrate group with sulphuric acid. Neither does the powder reduce Fehling solution, either directly or after boiling with dilute mineral acid.

The ordinary test for sulphur in proteids, that of heating with excess of sodium hydrate in the presence of a small amount of the acetate of lead—is not given by the portion of the germ split off by alkali in absolute alcohol. If, however, a portion of the substance in a test tube is fused with metallic sodium, and the cooled mass treated with water, a few drops of a freshly prepared solution of sodium nitroprussiate added to part of the clear filtrate, give a beautiful violet color, indicating the presence of sulphur. Also, if the other part of the clear filtrate be treated with a lead acetate solution and acidified with acetic acid, lead sulphid is precipitated. If the solution is acidified before lead acetate is added a faint but unmistakable odor of hydrogen sulphid is detected. It is known that sulphur may exist in the albuminous molecule in at least two forms, one part being readily split off on heating with dilute alkalies as hydrogen sulphid, the other being obtained only when the destruction of the proteid molecule is carried much farther. Since the nitroprussiate reaction is very delicate, no conclusion as to the amount of sulphur can be drawn from this test, and although a good precipitate of lead sulphid is formed, the amount of sulphur is probably not large, since Leach, in this laboratory, failed entirely to find sulphur present in the ash of the colon bacillus. It may be of interest to note parenthetically that both the germ substance and the residue which remains after extraction of the toxin, respond to the nitroprussiate test for sulphur, and also give the lead sulphid precipitate in the clear acidified filtrate from the fused mass.

A solution of the toxic substance is not coagulated by heat in acid, neutral or alkaline solution, though, as already stated, a few drops of a mineral acid causes the appearance of a considerable precipitate which is not soluble on heating or on the further addition of acid. This precipitate is produced regardless of whether or not the opalescence of the water solution is first removed.

Among the metallic salts, copper sulphate produces no precipitate and ferric chlorid only on heating. Silver nitrate naturally precipitates any trace of chlorids present, but after the addition of an excess of ammonia there still remains a small precipitate. Potassium ferrocyanid gives a precipitate, also potassium bismuth iodid in acid solution. Lead acetate, mercuric chlorid, and platinum chlorid all produce heavy precipitates. These latter precipitates have been examined more in detail and will be referred to again.

From a water solution of the powder, bodies giving proteid reactions may be salted out by the addition of ammonium sulphate or sodium chlorid to saturation, but on the removal of the neutral salt from the filtrates, these filtrates still respond to the proteid color tests. In the case of the salting out with ammonium sulphate, the precipitate shows little physiologic effect, whereas the residue from the filtrate, after removal of the ammonium sulphate, is still toxic and still gives the proteid color tests.

### NO EVIDENCE OF ALKALOIDAL BODY IN CRUDE SOLUBLE TOXIN.

Phosphotungstic, phosphomolybdic and picric acids all give abundant precipitates. Since these reagents are also used in the precipitation of alkaloidal bodies, the precipitates with phosphomolybdic and phosphotungstic acids were further examined, the possibility suggesting itself that the toxic body might be alkaloidal in nature and that the proteid part might be entirely separate from the poison. A sample was precipitated with phosphomolybdic acid in acid solution, the precipitate removed, washed and dissolved in ammoniacal water. This solution was then shaken with amyl alcohol. The alcohol was not colored and the residue obtained on concentration was so slight as to be practically nothing. Another sample was precipitated with phosphotungstic acid, the solution being acid in reaction. The precipitate was allowed to settle, removed by filtration, washed with acidulated water, decomposed with a saturated solution of barium hydrate and the remaining insoluble part filtered out. So far as possible the barium was removed from the filtrate with carbon dioxid, alternating with concentration and further addition of carbon dioxid. The solution was then allowed to concentrate to dryness, when the residue was dissolved in absolute alcohol, leaving barium salts behind. On concentrating the slightly opalescent solution, more barium salts came down during the process and were filtered out. The dry residue was taken up in water and ammonium carbonate used to precipitate the barium that still remained. After removing the barium carbonate, by evaporating on the water bath, both carbon dioxid and ammonia were expelled, the solution again becoming acid. Dryness being reached, absolute alcohol was once more used, leaving undissolved a small amount of inorganic material. In this way the final residue after evaporation of the alcohol was practically freed from inorganic impurities. Sulphuric acid no longer gave a barium precipitate in water solution. The amount obtained by this method was very small and an exceedingly small part of the original toxic powder used. Since the substance obtained in this way still gives good Millon's, biuret and xanthoproteic proteid reactions, it is fair to say that it is not alkaloidal. The very small amount obtained by this method was given a guinea-pig intra-abdominally and, though the animal was sick, it did not die. Either phosphotungstic acid does not precipitate the toxic body or else the amount obtained was less than a fatal dose.

Should the toxic powder contain an alkaloidal body existing as a salt in the acid solution, the possibility of extracting the base with ether or chloroform after the solution had been made alkaline with ammonia, is apparent. This was tried with negative results. To a water solution of the toxin, acid in reaction, ammonia was added, drop by drop, to a slightly alkaline reaction, the mixture shaken with ether, the ether separated and evaporated. The residue left was non-toxic. The ammoniacal water solution was next shaken with chloroform, the slightly colored chloroform drawn off and evaporated at low temperature, leaving a small amount of a dark, thick semi-liquid, which was non-toxic either as it was or after faintly acidifying with hydrochloric acid. The water solution remaining being still toxic, it is evident that the toxic part is not an alkaloidal body capable of being extracted directly.

Potassium bismuth iodid in acid solution of the crude soluble toxin produces an abundant precipitate, apparently more or less soluble in excess. This precipitate is soluble in ammoniacal water. On shaking with amyl alcohol so small an amount of substance is extracted as to be practically nothing.

Lead acetate produces a heavy precipitate which settles readily. The Millon test is given by the filtrate in this case and not by the precipitate. After removing the lead from both parts by means of hydrogen sulphid, both solutions were concentrated to a thick syrup. The residue from the filtrate still gave the Millon test, while that from the precipitate did not.

The residue from the filtrate was toxic for guinea-pigs, that from the precipitate was not, showing that lead acetate does not precipitate the toxic part. A determination of nitrogen by the Kjeldahl method in the toxic residue from the filtrate showed 9.90 per cent.

A saturated water solution of mercuric chlorid produces in a water solution of the poisonous powder, acid in reaction, an abundant rather curdy or fibrous-looking precipitate of a brownish color, but here again the proteid reactions are given by the filtrate and not by the precipitate and again after the mercury has been removed by hydrogen sulphid, the residue from the filtrate is toxic, that from the precipitate is not.

Platinum chlorid gives a good precipitate in both water and alcoholic solution of the crude soluble toxin. The alcoholic precipitate is perhaps the more abundant. It has been found that from 10 to 15 per cent. of the crude poison is thus precipitated. The precipitate is insoluble in water, hot or cold, acid, alkaline or neutral in reaction, in alcohol, ether, chloroform or acetone, so, naturally, all attempts to crystallize it failed. It gives the Millon test perfectly, also the biuret and xanthoproteic reactions. These tests are not given by the filtrate or by the residue from it after removal of the platinum by hydrogen sulphid. The precipitate after removal of the platinum is very toxic, having twice the toxicity of the crude poison.

As has already been stated, that part of the germ split off by alkali in alcoholic solution and designated as the "crude soluble toxin" is undoubtedly a mixture of substances. At present it is not known whether the toxic part itself is a single chemical compound or not. There is no evidence that it is an alkaloidal body, and it is interesting and it may be significant as well, that wherever the toxic part is found the proteid color reactions are given also. Another apparently constant factor is the acidity of the poisonous body. In places where, by precipitations, washings and purifications, there is no chance for any trace of inorganic acid used to remain, this acidity of the toxic part still remains, e. g., when the toxin has been precipitated by platinum chlorid in alcoholic solution, the precipitate carefully washed with alcohol, the platinum removed by hydrogen sulphid and the clear resulting solution concentrated to dryness on the water bath, the very toxic residue remaining is still acid in reaction.

### TOXIN BROKEN UP WITH CONCENTRATED HYDROCHLORIC ACID.

Assuming the compound nature of the toxic substance and the possibility of splitting off therefrom a less complex toxic group, the effect of breaking up the crude poison by prolonged heating with concentrated hydrochloric acid was tried. Samples of the toxin were heated on a boiling water bath for five hours with from 20 to 30 volumes of concentrated hydrochloric acid. Practically everything was dissolved, the solution being very dark brown, almost black. This solution, after filtering, was neutralized with sodium carbonate and evaporated to dryness on the water bath, when the residue was thoroughly extracted with absolute alcohol, forming a pale yellow solution. This, on the addition of a saturated alcoholic solution of mercuric chlorid, gave a heavy white precipitate which, after thoroughly washing with alcohol, was dissolved so far as possible in boiling water, the precipitate being difficultly soluble in a large amount of hot water and leaving an insoluble part. The clear solution was concentrated on a water bath and from it were obtained sheaf-like aggregations of rather long, narrow, fragile-looking prisms. These were filtered out, put into water, and the mercury removed by hydrogen sulphid. On evaporation there remained a small amount of a brownish residue, acid in reaction again and very toxic, the symptoms produced resembling those given by the crude soluble toxin. It is known also that this residue dissolved in alcohol gives a precipitate with alcoholic platinum chlorid. Work is now in progress in the preparation of both the mercury and platinum compounds in quantities sufficient for their study and identification.

### CONCLUSION.

Briefly, then, there is split off from the germ substance of the colon bacillus by treatment with a 2 per cent. solution of sodium hydrate in absolute alcohol a crude soluble toxin, leaving undissolved a residue which is almost completely soluble in water but which is not poisonous. That a definite cleavage takes place is shown by the fact that the germ substance is split so decidedly into two distinct and different parts, a point being reached where no more toxin can be split off, thus leaving an inert residue. The toxin is obtained whether the germ be grown on agar or on Fraenkel's modification of Uschinsky's medium, demonstrating that it is an integral part of the cell. The use of the modified Uschinsky's medium shows also that the organism is able to build the toxin synthetically from chemical compounds.

This poisonous substance, freely soluble in water, but more readily and perfectly in absolute alcohol, gives all the ordinary proteid color reactions, but does not yield a reducing carbohydrate. There is no evidence that it is alkaloidal in nature, the toxic part being precipitated directly by platinum chlorid alone, with the probable exception of phosphotungstic acid, and in both these cases the toxic body obtained still gives the proteid reactions. It may be broken up by concentrated acid, and a toxic crystallizable body precipitated by the use of mercuric chlorid.

The cell substance of typhoid and anthrax bacilli, as well as that from the colon bacillus, is broken up by dilute alkali in alcohol at 78 degrees, into portions A and B, the former being in solution in the alcohol while the latter forms an insoluble residue. Both A and B are soluble in water and aqueous solutions of A are poisonous, while similar solutions of B are inert or relatively so. Portion A from the colon bacillus, at least (the others not having been so thoroughly studied as yet), can be divided into two portions, *a* and *a'*, by precipitation with platinum chlorid. Portion *a* constitutes from 10 to 15 per cent. of A and is poisonous, while *a'* is inert. The proteid color reactions follow the poisonous portion in these separations. By breaking up portion A with concentrated hydrochloric acid, a crystalline toxic body is obtained.

The relation of these poisonous, alcohol-soluble proteid derivatives to similar substances obtainable from other proteids, also their relation to the alcohol-soluble proteins obtained by Osborne from seeds, are matters for further investigation.

A detailed study of the action of the poisonous portion on animals will be presented in a paper by a coworker in this laboratory.

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**Case Reports.**—Every physician sees instructive cases not duplicated in the experience of others. If he does not report them, remarks the editor of the *Medical Council*, their lessons are lost to medical science.

# LOCAL ANESTHESIA IN MAJOR AND MINOR OPERATIONS ON THE EAR,

## AS OBSERVED IN PROFESSOR POLITZER'S CLINIC IN VIENNA.

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AND
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During our term of service as clinical assistants in Professor Politzer's clinic we had the opportunity to observe and to study the various methods of applying local anesthesia in otology.

Although the Schleich and other solutions from time to time had been used with various degrees of success, it remained for Neumann, assistant to Professor Politzer, successfully to develop a method of local anesthesia, by means of which almost any operation can be performed on the ear without more than passing inconvenience to the patient.

Neumann first tried this method in the case of a strong Hungarian—a coal miner by trade—who had suffered for years with a chronic otitis media. In this case he injected 7 c.c. of a 1 per cent. solution of cocain with five drops of tonogen[1] to each c.c. of the solution, and the result was most astonishing. A radical operation, lasting over an hour, was performed, according to Zaufal's method, without the slightest manifestation of pain on the part of the patient. Encouraged by the success of the anesthetic in this case, a number of operations were performed, and the technic was modified and improved from time to time till the present method was developed.

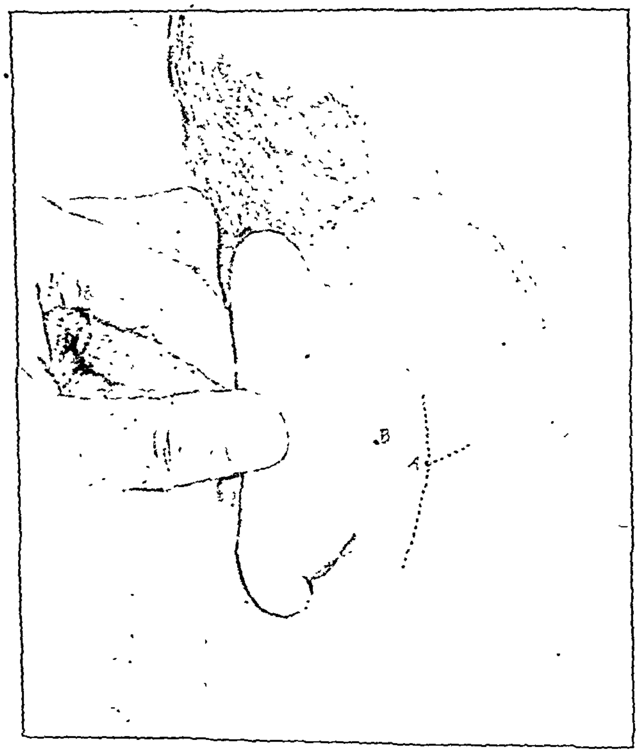

Fig. 1.—Showing the point of injection.

Preparatory to the operation, the patient is given a meal, as experience has shown that cocain is much less toxic when the patient has partaken of a meal shortly before its injection. The patient is then prepared as for any surgical procedure; the region of the ear is shaved, rubbed with ether, scrubbed with green soap, then washed with bichlorid solution 1:1,000. This is repeated twice, after which the part is again rubbed with ether.

The injection of the solution is best made with the patient in a sitting position, but if preferred, it can be done with the patient lying on the side.

The following three solutions should have been previously made:

(*a*) One per cent. solution of eucain in distilled water with five drops tonogen to each c.c.

(*b*) One per cent. solution of cocain in distilled water with five drops tonogen to each c.c.

(*c*) Solution of cocain, 20 per cent.

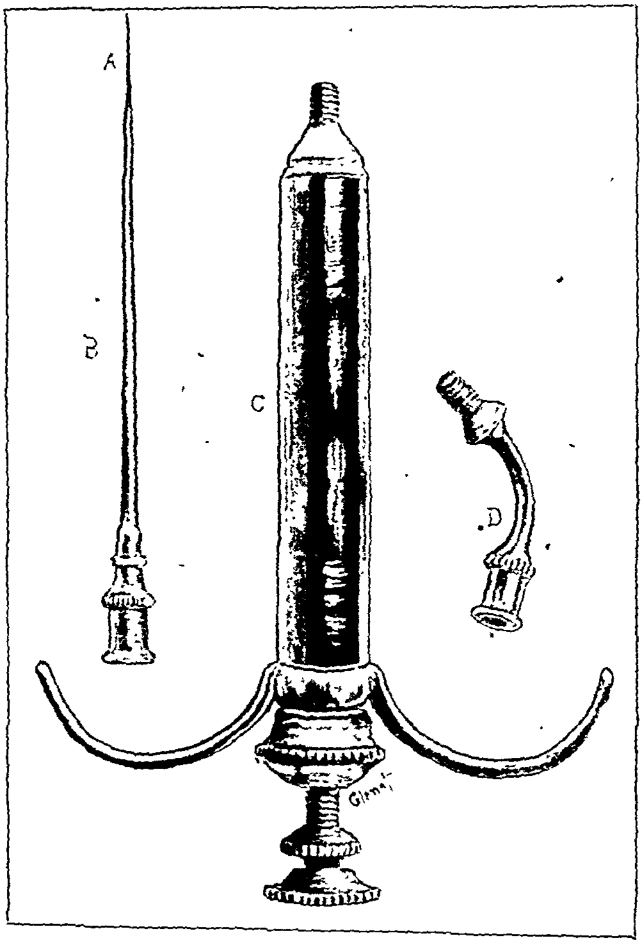

Fig. 2.—Syringe used in injecting the solutions. The arm d which unites the needle b and the syringe c allows the syringe and the hand of the operator to be below the line of vision. The point of the needle a is easily detachable so that the new points can be inserted from time to time.

The operator now fills the syringe with the eucain-tonogen solution, and places it in hot water until it is warmed to the temperature of 40 to 50 C. This is essential, as the anesthesia is more rapidly completed if injected at this temperature.

An assistant now takes the place of an anesthetizer and watches the pulse, pupils and general condition of the patient; he remains in this capacity during the entire operation.

### SITE AND METHOD OF INJECTION.

The needle is now inserted over the mastoid process at the point "a," Figure 1, and forced upward through the tissues till it reaches the bone, when 1 c.c. of the eucain solution is injected beneath the periosteum.

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[1] This is an extract of the adrenal gland made in Austria and is similar to the various adrenal preparations of this country.

The syringe is now refilled and the needle inserted through the same opening. This time, however, the direction being downward and the point carried in the region of the apex of the mastoid process where 1 c.c. of the solution is injected beneath the periosteum. The syringe is again filled with the eucain solution, and the needle inserted in the same opening and directed inward and somewhat backward.

The external ear is now drawn forward and 1 c.c. of the solution is injected between the anterior wall of the mastoid process and the cartilage of the ear at the point b, Figure 1.

A speculum is now inserted in the ear and 1 c.c. of the cocain solution is injected into the superior wall of the ear at the point of junction of the bony and cartilaginous portions. Another syringeful is injected into the inferior wall. and one-half syringeful each into the anterior and posterior walls. The injections must be made beneath the periosteum, and in such a manner that a protrusion of the wall can be seen following them. This protrusion will disappear as absorption takes place.

A small pledget of cotton is now saturated with the 20 per cent. cocain solution and is inserted into the tympanic cavity through the perforation in the tympanic membrane, which always exists in these cases. This pledget is not removed until the antrum is opened in the regular course of the operation.

The parts are now covered with a bichlorid dressing which remains in place until the operation is begun. All in all, not more than 4 or 5 cgm. of eucain and 3 cgm. of cocain are used, combined with the vessel contracting and antitoxic tonogen. Eucain is made use of in this connection, as the toxic properties of this drug are very much less than those of cocain. The latter drug, however, is injected into the auditory canal, as its action persists longer, thus allowing the operator to work in the antrum and attic with perfect freedom.

The symptoms following the injection are never alarming. As soon as the injection is completed, the patient is placed in a recumbent position, either in bed or on the operating table, and the assistant who takes the place of the anesthetizer continues to observe him. In a few minutes he may complain of slight headache or nausea, both of which are overcome with a few spoonfuls of hot black coffee with a little brandy.

## THE RADICAL OPERATION.

After from 15 to 20 minutes, the anesthesia and anemia for the radical operation are complete, and one may begin as in any radical mastoid operation. Only small pieces of bone should be removed at a time, and the chisel should be held as flat as possible, thus avoiding the concussion which would ensue if the chisel were held perpendicularly. If preferred, the burr may be used in this operation with very good effect.

A pillow placed under the head of the patient also aids in reducing the jar to a minimum.

The patient feels that something is being done in this region, but has no symptom of positive pain. The only exception to this may be in the initial cut through the skin, which some of our patients claimed to have felt. Nervous subjects are sometimes apprehensive when they feel the jarring caused by the first hammer strokes, but after a few minutes even this disappears and they suffer no greater inconvenience than when undergoing treatment at the hands of the dental surgeon.

We are convinced that with the possible exception of children and hysterical subjects nearly every patient can be operated on by this method, and that in a great majority of cases a general narcosis can be dispensed with.

## OTHER OPERATIVE PROCEDURES.

The procedure previously described is for the radical operation, but the efficiency of the anesthesia is by no means limited to this class of cases. In acute mastoiditis, which frequently demands operative interference, we find that by this method the operation can be painlessly performed without subjecting the patient to the danger of a general anesthetic.

In injecting the solution in these acute cases, the same technic is followed as for the radical operation, so far as it concerns the posterior auricular region; it is not necessary, however, to inject any cocain into the auditory canal. When there is subperiosteal abscess, the fact that the subperiosteal space is filled by the abscess interferes with the absorption of the solution.

We now turn our attention to those cases known as the intratympanic cases. This operation, although a relatively minor one, has always demanded a general anesthetic. Rather than run the risk of anesthetizing a patient twice, operators have generally chosen to perform the radical operation at once, thus ignoring the possibility of curing the condition by removing the ossicles, which he could easily have done had he been in possession of an efficient local anesthetic. By this method the extraction of polyps, granulations, endotympanal pseudoligaments, and even resection of the lateral wall of the attic, which has already been performed by Professor Politzer, may be made office operations.

As this method of anesthesia reduces the extraction of the malleus and incus to a minor operation, and at the same time allows the operator to thoroughly examine with the sound those parts of the ear which formerly it was not possible to examine, we believe that a more complete agreement as to what constitutes the indications for a radical operation will result.

We have performed many operations of this kind, in cases of chronic otitis media, with attic or antrum suppuration, or with partial or complete destruction of the drum, in which the malleus and incus were removed without any pain to the patients—a number of whom were children. In these cases a single injection of the cocain-tonogen solution was used, and even in the children there was not the least sign of any toxic symptom following the injection of the solution.

## THE INTRATYMPANIC OPERATION.

The technic of the intratympanic operation is as follows:

The ear is cleansed with deodorized benzine and washed with hydrogen peroxid or lysol solution. The syringe is then filled with the 1 per cent. cocain-tonogen solution and warmed to 45 C. The speculum is now introduced in the ear and the needle inserted into the superior wall at the junction of the bony and cartilaginous portions. The needle is forced in until it reaches the bone, when a few drops are forced out of the syringe. The needle is then pressed cautiously forward and more of the fluid injected beneath the periosteum. In this procedure care must be taken that the needle is not forced through the cutis, or the fluid will escape into the auditory canal. Should this occur, the injection must be repeated two or three times until the covering of the superior wall bulges downward, showing that sufficient fluid is retained.

The syringe is cautiously withdrawn and a small pledget of cotton saturated with tonogen is pressed against the field of operation. After waiting from ten to fifteen minutes to allow the anesthetic to take effect, the operation can be performed without the slightest inconvenience to the patient.

On the completion of the operation, the field is dusted with a mixture of equal parts of anesthesin and boracic acid to counteract the severe pain which would otherwise develop in an hour or two following the operation. This indication is fully met by this powder, as in the cases where it has been used the patients have not complained of any pain subsequent to the operation.

The syringe used for these injections is of metal, holding 1 c.c.; and with a needle modified by Neumann. A pair of half rings (which are detachable) have been added to the syringe to facilitate the injection.

In conclusion, we wish to express our gratitude to Professor Politzer and his assistants for the exceptional opportunities afforded us for study during our term of service in the clinic at Vienna.

## PUS TUBES IN THE MALE, AND THEIR SURGICAL TREATMENT.

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*Due attention is not generally accorded to the fact* that the genital duct proper in the male—seminal vesicle, vas deferens an[illegible] as prone to suppuration as is the [illegible] in the vesicle, it is true, has been recognized, in recent years, as a frequent feature *of gonorrhea; but the extension of this* infection to the epididymis—frequent and familiar though it be—is not generally considered a suppurating process. Even the best of our modern treatises expressly state that suppuration is exceptional in epididymitis, gonorrheal or other; they consistently prescribe the usual medical treatment, but do not advise the evacuation of pus, except in those rare cases in which fluctuation becomes distinct.

The pus infections of the epididymis and of the vas deferens present a complete though neglected analogy with the familiar pus infections of the fallopian tubes. An epididymitis following prostatic pus infection, whether gonorrheal or other, is usually suppurative; pus tubes are quite as common in the male as in the female; hence the rational treatment of such acute epididymitis should frequently be surgical, i. e., it should include the evacuation of pus by incision.

In the mildest cases such incision may be needlessly radical, since the pus may presently find the natural channel into the urethra; on the other hand, the acute hydrocele and the scrotal edema, which so often accompany severe acute epididymitis, are infallible signs of suppuration in the epididymis, and the incision is followed by relief from pain and subsidence of the swelling. Even when no pus escapes, the relief of tension affords marked comfort and insures a relatively speedy convalescence.

If direct exit for the pus by incision into the epididymis be not provided, the gathering pus often burrows along the vas into the urethra; and thus is explained the familiar phenomenon that decrease of the pain of epididymitis is accompanied by marked increase in the discharge from the meatus. Moreover, persistent suppuration in the epididymis may feed the gleet which follows, just as pus-tubes in the female feed a leucorrhea; and this gleet may recur indefinitely, in spite of elaborate urethral and internal medication, until the hard and tender swelling of the epididymis is incised and the contained pus evacuated.

In other words, the successful treatment of a gleet sometimes requires incision into the epididymis.

Again, chronic epididymitis through pus infection may require surgical treatment; persistent pain and tenderness following the acute infection (sometimes miscalled neuralgia of the testis) is relieved by incision or excision of the epididymal pus focus; destruction of the testis by extension of the pus infection from the epididymis may be prevented by the same treatment.

The lower end or tail of the epididymis presents the chief swelling in acute or chronic epididymitis (pus infection), since in this tail is coiled the greater portion of the 20 feet of the epididymal tube; and into this lower end the incision usually should be made. Simple puncture with bistoury or aspirating needle may sometimes suffice; yet drainage is better assured by an incision a half inch or more long, the edges of the pus cavity being loosely stitched to the cut edges of the skin, and a small drain inserted.

In a few cases I have practiced a therapeutic measure which, according to my present information, is novel, namely, injections into the vas deferens and seminal vesicle, through a needle introduced into the vas just above the epididymis. As the dilated upper extremity of the vas, the ampulla, bears about the same relation to the vesicle that the auricle does to the ventricle of the heart, a liquid injected into the vas easily reaches the vesicle; this can be clearly demonstrated by injecting Prussian blue in water into the vas of the fresh subject.

The therapeutic value of such injection is not yet accurately determined; at present it can be merely affirmed that this is a practicable way—and as yet the only way—for directly medicating the male genital tube, including the vesicle, which is so commonly and so persistently infected by various pus bacteria and by the gonococcus.

## *Special Article*

## IMMUNITY.

### CHAPTER XIII.

### THE BACTERICIDAL PROPERTY OF SERUMS.

There are two theories of note which concern the ability of the body to destroy bacteria. One of these is the phagocytic theory of Metchnikoff, according to which micro-organisms can not be destroyed without the direct or indirect participation of the phagocytic cells; this is the cellular theory. The second, the humoral theory, supposes that the power resides in the fluids of the body alone; in its improved form it now holds that antibacterial immunity should be considered cellulo-humoral, and that whatever bactericidal power the body fluids have is derived primarily from the body cells. Many who appreciate the action of the serum, however, also believe that phagocytic cells may take up and, in certain instances, destroy micro-organisms; this combined view seems best to fit the facts as known at present.

The Cellular and Humoral Theories.

Antibacterial, bactericidal and bacteriolytic are three terms which are used in a rather loose, interchangeable way, although they are not strictly synonymous. A bactericidal serum is one which is able to kill bacteria, as the term implies; if at the same time it dissolves the organisms it is bacteriolytic. Inasmuch as some serums do kill bacteria without dissolving them (typhoid), while others have the dissolving power (cholera), the distinction is one of significance. In either case the serum is, of course, antibacterial.

**Bacteriolysis and Bacteriolysin.**

For lack of a more concise English term, bacteriolysis is used to designate the process in which bacteria are killed by serums regardless of the dissolving power of the latter. Bacteriolysin refers to the substances of the serum which accomplish this action. The means of determining the bactericidal power of a serum was indicated in a previous chapter. Bacteriolysis is best observed with the organism of cholera and its antiserum as described later under the title of the Pfeiffer experiment.

Bacteriolysins are far more complex than antitoxins, agglutinins and precipitins. One may best appreciate the present situation by briefly tracing their history as they were evolved from the relatively simple alexins of Buchner.

**Alexins.**

Following the investigations of Fodor, Behring and others, which showed that normal blood may kill bacteria in the test-tube, and after additional facts were obtained by Nuttall, Buchner demonstrated that it was not necessary to use the full blood in order to obtain the bactericidal action, but that the serum alone had a similar effect. He spoke of the antibacterial substances collectively as alexins (substances which ward off), taking the reasonable view that natural immunity to bacteria depends on their presence.

Alexins were very sensitive substances; they disappeared spontaneously from serums in a few days, were destroyed by a rather low degree of heat (55° C.), by acids and alkalies, and were active only in the presence of certain salts, especially sodium chlorid.

**Selective Action.**

A striking feature of alexins, as distinguished from chemical bactericides, was their marked selective action on bacteria. The alexins of animal A might destroy one micro-organism readily and affect another little or none at all, whereas those of animal B might have opposite selective characteristics. The increased bactericidal power of serum which develops during immunization or infection, goes hand in hand with the increased resistance of the individual against the infection. The alexins have undergone a specific increase; they are now immune alexins or, as we say to-day, immune bacteriolysins. The new alexins are identical in their properties with those which occur normally; they exist merely in greater concentration in the acquired immunity.

Work which was instituted by Pfeiffer and developed further by others led the way to a more correct understanding of the nature of alexins.

**The Phenomenon of Pfeiffer.**

Pfeiffer studied the bactericidal action of serums in the body of the living animal, i. e., in the peritoneal cavity. His most classic results were obtained with the organism of cholera. Guinea-pigs are immunized against this microbe by injections of the killed or living organisms. We have already learned of this process as that of active antibacterial immunization. When the animal is well immunized the experiment is begun by the injection of a quantity of culture which would be fatal to an unimmunized animal. At intervals during the next twenty or thirty minutes small amounts of the peritoneal fluid are removed for microscopic examination. In order to obtain the fluid, fine pipettes are drawn out in the flame, an incision is made in the skin, and the abdominal wall is then punctured with the pipette; the fluid flows into the tube by capillary attraction. A portion may then be examined in a hanging-drop preparation or dried on a cover-glass, fixed in the flame and stained with a dilute solution of carbol-fuchsin. In the hanging-drop preparations it is first noticed that the organisms have lost their motility; the comma- and S-shaped forms soon become spherical and at first appear swollen and clear, whereas in later preparations they gradually decrease in size and show a very rapid vibrating movement, the so-called Brownian movement, which is purely physical in nature. In the course of from twenty to thirty minutes the organisms have been completely dissolved. These changes may also be followed in the stained specimens, in which the altered cells eventually appear as fine red granules.

**The Experiment in Vitro.**

As Metchnikoff, Bordet and others have shown, the same phenomenon may be followed without the intervention of the animal body, by mixing perfectly fresh anticholera serum with the vibrio and mounting as a hanging-drop preparation. The slide must be kept at the temperature of the body by means of a warm stage. The reaction, however, is far less vigorous than when it takes place in the peritoneal cavity and the solution of the cells may not be complete. No bacterium is so completely dissolved under these conditions as the vibrio of cholera, although the typhoid bacillus and similar organisms undergo some changes in their form.

**The Activation of an Inactive Serum by the Tissues.**

The experiment of Pfeiffer may also be conducted in the abdominal cavity of a non-immune guinea-pig, if anticholera serum is injected in conjunction with the organism (passive antibacterial immunization). This is the classic Pfeiffer experiment. The immune serum should be of such strength and should be given in such quantity that the animal is saved in spite of the ten fatal doses of culture which the typical experiment demands. Experiments brought to light a condition which seemed paradoxic; an old immune serum which had lost its bactericidal power as manifested *in vitro*, or one in which the alexins had been destroyed by a temperature of 60° C., showed its original protective power when the experiment was performed in the peritoneal cavity. Furthermore, when an inactive immune serum was injected into the cavity, allowed to remain for a time and then withdrawn, its bactericidal power for experiments *in vitro* was found to be re-established. On the basis of these facts, Pfeiffer concluded that the specific substance is present in the immune serum in an inactive form, and that it becomes active as a result of contact with living tissue cells, supposedly the endothelial cells of the peritoneum. According to this conclusion, an inactive serum could become active again only after its introduction into the body.

It remained for Bordet to show, on the contrary, that the serum could again be made active for experiments in the test-tube without the aid of living cells.

**Inactivation and Reactivation.**

This he accomplished merely by adding to the heated immune serum a small amount of fresh normal serum from the guinea-pig or goat, the quantity of normal serum which was used not being in itself bactericidal. We have, then, two serums which when combined are bactericidal, but when separated are inactive. The destruction of the active property of a serum by heat or by other means is called inactivation, and the reestablishment of its power by the addition of fresh normal serum is reactivation. The immune serum, when heated to 55 to 60° C., loses something which is essential to its activity, and this something may be replaced by the normal serum. That the substance in the normal serum is identical with that which was destroyed in the immune serum is indicated by the fact that it is destroyed by the same degree of heat; a heated normal serum will not reactivate an immune serum.

The conclusion of Bordet that the bactericidal power of a serum depends on the combined action of two substances has been substantiated by numerous investigators.

**Two Substances in a Bactericidal Serum.**

The properties of the two substances will be given in the succeeding chapter. At this point it is sufficient to say that these are the substances which in recent years have become familiar under the names of amboceptor and complement and their various synonyms. One of them, the amboceptor, is heat-resistant (thermostabile), i. e., it is not destroyed at 56° C., whereas the other, the complement, is susceptible to heat (thermolabile), being destroyed at that temperature which killed the alexins of Buchner. The term alexin is still applied by some writers to the thermolabile substance (complement), but its original significance has been lost.

**Specificity.**

**Group Reaction.**

The specificity which prevails among antitoxins and agglutinins is found also in the action of bactericidal serums. When an anticholera serum is injected into the peritoneal cavity of a guinea-pig, protection is not afforded against other vibrios or other pathogenic organisms. The specificity is so great that the reaction of Pfeiffer may be used for the identification of bacteria. If one has in hand an unknown vibrio, its identity or non-identity as the organism of cholera may be determined by injecting it, in conjunction with anticholera serum, into the peritoneal cavity of a guinea-pig; if the microbe is transformed into granules it is the vibrio of cholera, otherwise it is not. Other bacteria may be identified in a similar manner by the use of the proper serums. In spite of this high specificity the group reaction may occur even with bactericidal serums. An antityphoid serum may have a stronger bactericidal action than a similar normal serum against organisms which are closely related to that of typhoid, as the colon bacillus, but the power is never so strong as against the typhoid organism. Hence, for the purpose of identifying bacteria, the method of serum dilution is as decisive as in connection with agglutination.

Bactericidal serums are not obtained with equal readiness for all organisms. We are most familiar with those which are yielded by immunization or infection with the microbes of cholera, typhoid, plague, the colon bacillus and related bacteria. Many other bacteria yield neither antitoxins nor bactericidal substances through immunization, nor are the serums protective when injected into animals; the pneumococcus, streptococcus, tubercle bacillus and others. Individuals who have suffered infections from these organisms are endowed with little or no immunity against subsequent attacks. The pneumococcus grows well in the serum of a convalescent from pneumonia. Thus it is seen that the field of antibacterial immunity is filled with many contraindications if one attempts to interpret it merely on the basis of the bactericidal properties of serums as they are manifested *in vitro.*

**The Effect of Bactericidal Serums on Endotoxins.**

In a preceding chapter micro-organisms were divided, first, into those which secrete soluble toxins, immunization with which causes the formation of antitoxins, and, second, those which do not secrete such toxins and for which no manipulations of cultivation and immunization known at the present time are successful in stimulating to the formation of antitoxins. After all, it seems plain that the bacteria of the second group must be pathogenic because of toxic substances which they carry with them into the body. In view of the fact, however, that they do not secrete soluble toxins in culture media, it is held that their toxic properties are integrally associated with the bacterial protoplasm; they are the endotoxins spoken of previously.

The question naturally arises: Does a bactericidal serum in dissolving or killing its homologous organism at the same time neutralize the endotoxin? On the basis of very positive experiments which have been performed, especially by Pfeiffer, it is evident that the serum has no such action. In the experiment of Pfeiffer, one may inject into the abdomen a sufficient quantity of anticholera serum to kill all the organisms which have been introduced, and yet the animal dies with the intoxication of cholera. Furthermore, if one considers a culture of the cholera vibrio, which has been killed by heat, as representing so much cholera toxin, anticholera serum protects against no more of it than does the same quantity of normal serum. It is believed that anticholera and similar immune serums may even increase intoxication by dissolving the bacteria and thus liberating an excess of toxins.

In spite of the classification of bacteria into the two groups just cited there are a few microbes which, according to manipulation, cause the formation of either an antitoxic serum or a bactericidal serum. In general it may be said that the character of the serum depends on the bacterial constituent which is used for immunization. If the diphtheria bacillus itself, or the pyocyaneus bacillus, is injected, the toxin having been washed away, bactericidal serums are formed, whereas if toxins alone are introduced, antitoxins are the result.

**The Bactericidal Power in Relation to Natural Immunity.**

In view of the fact that the increased bactericidal power of the serum of one who has had typhoid fever, cholera or one of the other diseases in this group, is so distinctive and so potent, it is generally believed that the immunity depends on this factor. May we with equal justification conclude that the bactericidal powers of normal serums are correct indices of the natural antibacterial immunity of the animals? Although this relationship has been found to exist in a number of cases, there are other instances in which it does not prevail. Anthrax may be cited as an example; *in vitro* the serum of the rabbit is strongly bactericidal for the bacillus although the animal is exceedingly susceptible; on the other hand, the dog has much more resistance to anthrax although its serum has but slight bactericidal effect on the organism. Experiments of some importance have to do with the ability of bacteria to absorb the homologous bactericidal substance from a serum when the two are mixed in test tubes. Hence, if natural antibacterial immunity depends on the bacteriolysin which is present in the circulation, a large mass of the bacterium when injected intravenously should absorb or fix the bactericidal substances; as a consequence, serum which is drawn later should show a great decrease in its bactericidal power for the organism which was injected. Although results of this nature have been obtained by a number of competent investigators, they are not without exception. In the same connection fatal infections should be accompanied by a decrease of the natural bactericidal power of the serum for the organism involved. This has been found to be true in man in relation to plague, and in some animal infections. At present general statements concerning this point can not be well made.

**Origin of Bactericidal Substances.**

We have little positive knowledge concerning the organs which form the bactericidal substances in acquired immunity. Pfeiffer and Marx, in relation to cholera, and Wassermann in typhoid, found that the spleen and the hemopoietic organs in general contain the immune bodies in greater concentration than the blood serum, and in immunization experiments the bodies may be demonstrated in these organs at a time when they are absent from the circulation. This fact is generally accepted as proof of their formation at these points. Wassermann and others have demonstrated the presence of complement in the leucocytes, and Metchnikoff holds that it is produced only by such cells.

**Standardization.**

The standardization of bactericidal serums is at present more of theoretical than of practical interest, because of their limited therapeutic use. Their values can not be determined with the same degree of accuracy with which one measures the unit of antitoxin. One may deliver from a pipette a definite quantity of toxin and if the toxin has been well preserved the same quantity may be obtained at any subsequent time. It is impossible to preserve a culture of living bacteria so that the number of the organisms and the virulence of the culture remain constant, nor will two cultures made at different times contain the same number of cells in a given volume. Hence, standard cultures which are necessary for the systematic valuation of serums are not easily available. One may use a definite volume of a bouillon culture of an organism which has grown for a certain number of hours, but in all likelihood no two cultures would contain the same number of organisms.

Pfeiffer uses the normal loop which has been mentioned, i. e., one which will take up from a surface of agar two milligrams of the bacterial mass. The culture must have grown for a definite period, eighteen to twenty-four hours. Tests having some value may be made in the test-tube, provided the antibacterial serum is used when perfectly fresh, i. e., when its complement has not yet degenerated; this, of course, gives one only the bactericidal power as it is manifested outside the body, and, as stated, this may not be a correct index of the protective power of the serum when it is injected into the living animal. For the test-tube experiment various dilutions of the serum are made, as 1 to 10, 1 to 100 and 1 to 1,000, and a similar quantity of each dilution is mixed with a given mass of the culture; the mixtures are then placed in the thermostat for a number of hours. At the end of this time plate cultures are made from each of the mixtures, the plates put aside for twenty-four hours, and the colonies which have developed are then counted. The quantity of serum required to kill all the bacteria used may thus be determined.

When the protective power of the serum is determined by animal experiment it is not essential to use the serum when fresh; in fact, the native complement in the immune serum may be disregarded, or, preferably, it may be destroyed by heat. If the latter procedure is adopted, or if an old serum is used in which the complement has degenerated, its reactivation is accomplished through the complement which is present in the body of the experiment animal. It will appear in more detail in the succeeding chapter that a given antiserum requires a particular complement for its reactivation, and that this complement may be present in some animals and absent in others. Hence, it must be known in advance that the animal chosen for the experiment possesses the suitable complement.

It is also necessary to know the virulence of the culture with which the antiserum is to be tested. It is possible to maintain some organisms at a rather constant virulence by passage, i. e., infecting animals with the microbe and recultivating it from the tissues. With others, abundant controls must be made at the time the serum is tested in order to know at that moment the precise virulence of the culture. In all probability it requires more serum to protect against very virulent cultures than against those of less virulence.

To find the value of anticholera serum Pfeiffer prepares dilutions similar to those mentioned above, and to the same quantity of each dilution adds ten fatal doses of a virulent culture of the vibrio of cholera. These are injected into the peritoneal cavities of three guinea-pigs and after periods of forty to sixty minutes hanging-drop preparations are made from the peritoneal fluid of each animal to determine the formation of the characteristic granules; the highest dilution which causes this change in the cells stamps the value of the serum. The animal must at the same time be protected against the ten fatal doses of the culture.

The value of an antityphoid serum may be determined in the same way, the result being judged by the protection which is afforded the animal rather than by the formation of granules.

Antityphoid, antiplague, and some other serums are also tested by injecting the serum twenty-four hours in advance of the culture.

**Non-Specific Increase in Resistance.**

In contrast to the specific immunization which may be accomplished with an immune serum, it is important to recognize that a non-specific increase in resistance may be caused by the injection of a number of substances, which in the test-tube have no destructive action on the bacteria. Issaeff injected into the peritoneal cavity such substances as bouillon, tuberculin and sterile urine, and found the resistance of the animals increased to peritoneal inoculation of virulent organisms. Normal serum has a similar effect, but, in this instance, the bactericidal substances of the serum may be of influence. Supposedly, this non-specific resistance is local, and it appears to depend on the attraction of an increased number of phagocytes and of additional complement to the peritoneal cavity. The suggestion recently made that preceding laparotomy nucleinic acid be injected into the abdominal cavity, in order to increase the local resistance, has its foundation in the experimental work just cited.

*(To be continued.)*

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## Clinical Notes

### DIPHTHERIA ANTITOXIN IN THE TREATMENT OF GOITER.

ROBERT T. LEGGE, Ph.G., M.D.
McCloud, Cal.

During the summer of 1903 I had occasion to treat a family with diphtheria; one patient died from the laryngeal form after tracheotomy had been performed and large doses of antitoxin had been administered. An aunt acted as a nurse; she had exophthalmic goiter, with all the classic symptoms. No immunizing dose of antitoxin was given her, and she was infected with moderately severe pharyngeal diphtheria. I immediately injected 1,500 units of antitoxin and repeated the dose on the following day, combined with local antiseptic and internal supportive treatment, with the result that at the end of the week she was convalescent.

Four months later I saw this patient and noticed that the large tumor of the neck had disappeared, and that the eye symptoms were a trifle better. She stated that since the attack of diphtheria the goiter had grown smaller to such an extent that she noticed the muscle lines of the neck. Her pulse rate became normal and the muscular twitchings and nervousness ceased. She is the only person I ever heard of who confessed to being glad she had had diphtheria. The case was of eight years' duration. One year has now elapsed with no return of the tumor. Since then I have had two cases of goiter, with the following experiments with diphtheritic antitoxin:

Case 1.—Miss T., aged 22; simple goiter; no eye symptoms; disease of six years' duration. Her father died of heart disease.

*Examination.*—She was robust, had no anemia, but was very nervous and had palpitation of the heart. Pulse was regular, 90; no heart lesion. Tumor measured 33 cm.

*Treatment.*—July 16, 1904, I injected 2,000 units of antitoxin. July 25, 1904, I repeated the dose.

*Result.*—The pulse dropped to 85, tumor measured 32 cm. and she felt better. August 10, pulse 80, tumor 32 cm.; no palpitation or nervousness. A week later pulse was 72, but there was no apparent reduction of the tumor. I lost track of the case on account of removal of the patient. Four months later a friend of hers informed me that the tumor was nearly gone. She never complained again of her condition, and could button her collar bands easily on account of their looseness.

Case 2.—Mrs. E., aged 35, had exophthalmic goiter of a pronounced type and of two years' duration, but worse during the past four months. No family history of goiter.

*Examination.*—She complains of being tired and is very nervous, with accentuated muscular twitchings. Pulse soft, 120; she is anemic, has a heart murmur, ankles are swollen and there is albuminuria. Tumor measured 35 cm. and there was a loud bruit.

*Treatment.*—July 18 I administered 2,000 units antitoxin and on July 28 repeated the dose; pulse 82.

*Result.*—August 8, pulse 80, tumor 33.5 cm. She felt stronger, there was no palpitation, the muscular twitchings were controlled and heart symptoms improved. At this visit I asked her to purchase more antitoxin, but she could not, on account of the expense. Five months later she stated that she felt perfectly well and that she was able to do her housework and to perform other duties which she had been unable to perform before treatment. On examination I found the tumor very much decreased, over half the parenchyma having disappeared, leaving a bunch of pulsating vessels that felt like a varicocele. The eye symptoms were much improved, the muscular twitchings had disappeared and palpitation of the heart had been experienced but once since the treatment.

*Remarks.*—Whether the direct toxins from the diphtheritic infection in the first case were the cause of such a splendid result, or, as one author claims, goiter at times recovers on its own accord, is a question. If the former is the case, then this is a discovery which will bear further investigation. If the result was due to antitoxin, then my experiments with the above cited cases prove it. One thing positively demonstrated is the fact that the cardiac symptoms and muscular twitchings were markedly improved and that there was also a great reduction of the parenchyma of the tumor. This may have a bearing on the pathology of goiter as a microbic origin.

In conclusion I wish to state that the reduction of the tumor is greatly noticeable after from three to five months, the other symptoms being noticed much earlier.

# LATERAL CURVATURE IN AN INFANT ELEVEN MONTHS OLD.*

HOWARD CHILDS CARPENTER, M.D.
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PHILADELPHIA.

*Patient.*—Sarah D., aged 11 months, was brought to the medical dispensary of the Children's Hospital, in Dr. J. Madison Taylor's service, Jan. 4, 1905.

*Family History.*—The father is living and well. The mother is living, but suffers from endometritis, and is of a nervous disposition. She has been married ten years and in that time has had four miscarriages, three premature births and two full-term infants.

*History.*—The child was born at term, after an easy labor, lasting one hour; no forceps were used. The child had no deformity at birth. She was fed exclusively on breast milk until six months old, and since then, besides the breast milk, she has been given milk and crackers, meat broth and mashed potatoes. With the exception of an attack of enteritis when six months old the child has never been ill. Since then she has not been so well nourished and she has not gained so rapidly in weight as formerly, and occasionally she has had green stools. The mother denies all history of traumatism, says the child has never had convulsions, nor has she ever been, even temporarily, paralyzed. She says that she carries the child as much on one arm as on the other.

*Present Condition.*—Ten days ago, while giving the child a bath, the mother noticed for the first time that the right side of the infant's back was much more prominent than the left. The deformity is not any greater now than when she first noticed it. The mother says that the child is otherwise in good health, and that there are no subjective symptoms. At times the child is inclined to be constipated.

*Physical Examination.*—The patient is a poorly nourished infant with a muscular development below par. Its present weight is 13¾ pounds. The infant is pale and anemic, but there are no visible signs of rachitis. It has three teeth. The condition of the back is most striking; there is a very decided right primary dorsal scoliosis, with rotation of the bodies of the vertebræ, and secondary compensatory lumbar and cervical curves. This lateral curvature is of the third degree; that is, the spine can not be straightened either by suspension, extension, lying or by pressure. There is no inequality of the lower extremities. There is apparently no pain or tenderness on pressure over the spine. There is no wry-neck.

*Treatment.*—The mother is made to carry the child in the position which tends to correct the deformity. Massage, electricity and passive motion are employed three times a week. Cod-liver oil is given internally.

# A GAUZE-RUBBER SPONGE.

EVERETT MINGUS, M.D.
MARSHFIELD, ORE.

Flat gauze sponges lined on one side with thin rubber tissue such as is used for a dental dam, or preferably thinner, are of special value and afford great protection against soiling the abdominal cavity with escaping contents of the hollow viscera and other infective material during operations in this region. When a coil of intestine is brought out for the purpose of anastomosis or similar work which involves the opening of its lumen, there is considerable danger of the contents passing through an ordinary sponge packing and infecting surrounding structures. The chances for this unfortunate accident to occur are greatly minimized, if not wholly prevented, by the use of gauze sponges lined on one side with rubber, the rubber side being placed down. The rubber forms a positive barrier against infective material going completely through, as is liable to occur with an ordinary gauze packing. A sponge of this make is also serviceable in operations on the biliary tract where there is liable to be a copious escape of bile which would oversaturate and pass through ordinary gauze packing. The same use may be made of it in the pelvic cavity. By properly disposing these sponges a bowl or cup is formed which will effectually catch any deleterious material escaping from the scene of the operation. If one is careful in removing the sponge to make traction on all sides equally so as to lift it directly upward nothing will escape around the edges of the rubber; or in the construction of the sponge the rubber tissue may be cut wider than the gauze and be brought up over the edges and thus secure a perfectly non-penetrable sponge.

Rubber-lined sponges, besides having all the advantages of ordinary sponges for walling off, possess additional value in that the rubber coming in contact with the intestines and other organs does not cause irritation. Frequently rough and hasty methods of packing gauze around and between inflamed intestines is responsible for the destruction and removal of their serous coat and for subsequent adhesions. By loosely tacking the rubber tissue to the gauze with a running stitch it can be removed and used in the making of new sponges.

# GALL BLADDER THROUGH FORAMEN IN LIVER.

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OIL CITY, PA.

Mrs. S. was referred to me by Dr. John Hadley. The diagnosis of gallstones was made and operation was advised. The patient and her friends agreeing, the operation was performed at the Oil City Hospital, Feb. 16, 1905. Entering the peritoneal cavity, the fundus of the gall-bladder was found to be transmitted through a foramen in the liver. The lower margin of the foramen was about one-half inch from the thin edge of the liver, under which edge the gall bladder is usually found. I have never seen nor heard of such a formation before.

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## THE FUNCTION OF THE THYMUS.

Of the four chief "ductless glands," the thyroid, adrenal, hypophysis cerebri (pituitary body) and thymus, in only the first two has their function been understood through the isolation of a definite internal secretion. As to the function of the hypophysis and the thymus we are still very much in the dark. Beyond its relation to acromegaly we still know little concerning the former, and even this relationship is by no means so well defined as might be desired. In the thymus we have an organ quite different from the other three, which are all typical epithelial glands, since it presents the peculiarity of being both an epithelial and a lymphoid organ, with the lymphoid tissue preponderating. In the past few years there has been a considerable growth in the interest taken in the thymus, corresponding with the general advance in the study of the ductless glands and their secretions, but we are still far from any final conclusion as to its real function. By far the greater part of all experimental work has given results of a negative character. Repeated attempts to demonstrate an internal secretion by the methods used in the study of other organs have failed. To be sure, some slight effects on blood pressure have been noted, but nothing of any real significance.

The obvious relation of the organ to infancy and childhood naturally suggests an intimate connection with the phenomena of development—the thymus reaches its maximum size at the second year, remains little changed until puberty, and then rapidly atrophies. Nevertheless, numerous experimental removals of the thymus from young animals have failed to show that it is in any way essential for the phenomena of growth, or, for that matter, that it is at all essential for the life of the animal. Fischel,[1] whose report is the latest, could observe no definite influence on the development or health of young animals deprived of the thymus, nor did rickets occur; the healing of fractures went on as in normal animals; other observers have found no change in calcium metabolism after thymus extirpation. Assuming that the thymus must have a function, it would seem that it must be one that is either not essential for life, or else that it can be vicariously accomplished by other organs. One of the few positive results has been obtained by Paton,[2] who claims to have observed an earlier development of the testicles in young animals deprived of the thymus, although no particular changes could be detected in the females.

Pathologic observations have so far done practically nothing toward explaining the problem of thymus function—when diseased it seems to cause no symptoms beyond those due to mechanical factors. Possibly the marked atrophy of the thymus that occurs in marasmus and wasting conditions in children, first described fully by Ruhräh and recently corroborated by Dudgeon,[3] may indicate some influence of the thymus on nutrition, but it seems equally probable that the thymus atrophy is entirely a secondary process, depending on the causes that produce the other phenomena of infantile marasmus. Histologic studies have so far given us perhaps the most valuable positive information, starting with the observations of Mauer and Beard. The former found evidence that the lymphoid tissue is not derived from the mesoblastic structures that surround the epithelial cords of the embryonic thymus, as had been generally believed, but that the lymphoid cells are derived directly from the epithelial cells. Beard corroborated this, and, finding that the leucocytes did not appear in the fetal blood until after the lymphoid tissue had developed in the thymus, considered this organ as the original source of the leucocytes. This was an extremely revolutionary idea, that epithelial cells could be the parents of supposedly mesoblastic structures, such as the lymph glands and the leucocytes, and has not been readily accepted—nevertheless more and more evidence seems to be pointing in the same direction.

One of the latest sources of confirmation lies in the study of the tonsil by Wood.[4] The tonsil is of all organs most closely related to the thymus in structure, for in both the essential arrangement is a mass of lymphoid tissue surrounding columns or crypts of epithelial cells, which in both cases are developed from the lining of the upper part of the alimentary canal. In agreement with the observations on the thymus, Wood found evidence that the lymphocytic and lymphoid elements of the tonsils are derived from the epithelium both in fetal and in adult life. This being the case, it is also possible that in the whole gastrointestinal tract the epithelial crypts dipping into lymphoid tissue may be a source of leucocytes derived from epithelium; in this connection may be mentioned that the puzzling plasma cells, with their intimate relations to connective tissues on the one hand and to leucocytes on the other, are found particularly in the intestinal submucosa. This is a fascinating idea, that leucocytes may be formed from epithelium, for it upsets many fixed conceptions; but on the other hand it must be said that many earlier observations have hinted at the same thing, so it is really not so revolutionary as it may at first seem. Reverting again to the question of the function of the thymus, it may be concluded that, as the evidence stands at present, the chief office seems to be that of a leucocyte forming organ during fetal and infant life, this function perhaps disappearing later because of development of other lymphoid organs with similar function; everything so far speaks against the idea that the thymus produces an important soluble internal secretion, like the thyroid and adrenal, or that it is so essential to life as are these organs.

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[1] Zeit. f. exper. Pathol. u. Therap., 1905, vol. i, p. 388.

[2] Journal of Physiology, 1905, vol. xxxii, p. 28.

[3] Trans. Path. Soc. of London, 1904, vol. lv, p. 151.

[4] Univ. of Penn. Med. Bull., 1904, vol. xvii, p. 246.

## THE EFFECT OF THE ENTRANCE OF AIR INTO THE VEINS.

The fact that the entrance of air into the veins may lead to serious consequences was first observed by Heyden, late in the seventeenth century, but it was not until 1818 that the first authentic record of this accident in man was reported by Beauchêne. Since then the matter has been of great interest, particularly to surgeons and to obstetricians, as most of the reported cases have resulted from operative procedures, especially in the neck, or from the injection of foreign substances into the uterus.

There can be little doubt, as Welch remarks, that many of the cases reported as death from air embolism are based on entirely insufficient evidence. The researches of Welch and Nuttall, and later of Welch and Flexner, on the *Bacillus aerogenes capsulatus* made it very evident that in future all reports of air embolism must show that the possible action of this gas-forming organism was excluded. Especially in cases of so-called air embolism following uterine manipulation, the evidence, in most instances, favors infection rather than the introduction of atmospheric air. Still, all doubtful cases excluded, there can be no question that the introduction of air into the veins does in some instances cause alarming symptoms and sometimes death.

There seem to be certain etiologic conditions which must be present in order to allow air to enter the veins. As Delore and Duteil[1] have recently stated, the accident is a rare one, whereas the mere cutting of even large veins is very common. The entrance of air is most apt to occur after injury to the large veins at the base of the neck in the so-called "dangerous zone of Bérard." The danger is not confined to this region, but when it occurs elsewhere there is generally some pathologic change in the vein, either a thickening of the wall or infiltration of the surrounding tissue, which renders it less likely to collapse if opened. Then, too, a condition of anemia seems to favor the entrance of air, so that the accident is more apt to occur at the end of an operation when the patient has lost blood. The quantity of air introduced is of importance, and the old idea that a few small air bubbles were dangerous has been abandoned. The rapidity with which the air enters is also a factor not to be neglected.

The symptoms which are produced by the entrance of the air into the heart are quite characteristic. Sometimes a sucking sound is distinctly heard at the site of injury, sometimes this is not apparent. The patient is effected immediately, if not under general anesthesia he often utters a cry of anguish, and almost immediately becomes unconscious. The face is pale and livid, the pupils dilated and fixed, the pulse feeble and irregular. In a few of the reported cases auscultation of the heart has been practiced immediately after the accident, and a distinct churning bruit has been detected over the right side of the heart. In some cases foamy blood has been forced from the cut end of the vein. Death often occurs in seven or eight minutes in such cases, but may be delayed for hours. A few patients have recovered.

The phase of the matter which has led to most discussion is the pathogenesis. Why should the mere entrance of air into the veins cause death? Some have held that death is due to cerebral disturbances from blocking of vessels in vital areas by the air bubbles, but this is unlikely, as the air does not usually get into the general circulation. Others have claimed that there is a mechanical arrest of the right heart from overdistension, just as the bladder may be paralyzed from overdistension. The theory most widely held is that of Couty, who believes that the right heart becomes paralyzed, since the mixture of air and blood which it contains can not be forced on because of its compressibility. Passet and Hauer, on the other hand, believe that the blood and air are driven on and cause death by multiple emboli of the pulmonary capillaries. Recently François-Franck has advanced the hypothesis that the air bubbles pass into the coronary vessels, especially the veins, and that the heart stops beating on account of an acute anemia of the myocardium. It is quite possible that all these factors, as Welch suggests, may enter into the causation of the symptoms. Whatever the solution, the fact remains, and must be taken into account especially in operations at the base of the neck.

## ANAEROBIC BACTERIA IN GANGRENOUS SUPPURATION.

In the routine examination of pathologic material for bacteria very little emphasis, as a rule, is given to the detection and isolation of anaërobic organisms. This may be due to the very prevalent idea in medicine that the anaërobes, barring two or three rare forms, are of practically no importance in the production of pathologic lesions, and also to the fact that the cultivation of anaërobes is considered a complicated and difficult procedure. For a number of years past the French, especially, have called attention to the important rôle that this class of organisms plays in many of the most common affections in which the ordinary pus bacteria are thought to be exclusively concerned. Beginning with the work of Veillon,[1] and followed by the researches of a number of investigators, much important information has been added to our knowledge of putrid and gangrenous suppurations and to the part played by anaërobic organisms in these processes.

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[1] Rev. de Chir., vol. xxv, No. 3, 1905. Abstracted in The Journal, April 22, 1905, p. 1321.

[1] Veillon, XIII Internat. Med. Congress, Paris, 1900.

It is a not uncommon observation in appendiceal and periuterine abscesses, liver abscesses, putrid pleurisies, mastoiditis, putrid placental infections and the like to find few or no organisms in aërobic cultures, yet smears of the pus show bacteria present, and often bacteria with an entirely different morphology from those seen in the aërobic cultures. In such cases, pyogenic cocci and colon organisms are often obtained and the whole process is attributed to their presence. Anaërobic cultures, however, often show a very abundant flora present, and this is especially true in those instances in which fetid and gangrenous suppuration occurs. Infections caused by pneumococci, streptococci or staphylococci alone are practically odorless, but in infections in which are found anaërobic organisms there is, as a rule, a marked fetid odor. In fact, Rist[2] says, from his studies of putrid pleurisies, that there never occur fetid or gangrenous processes without the existence of strictly anaërobic bacteria. It is of prime importance, therefore, in all cases where there is present this fetid pus, to make anaërobic as well as aërobic cultures if a complete bacteriologic analysis is desired.

A number of varieties of anaërobic organisms are usually found in such cases and many are found with some degree of constancy in certain classes of infections. That these anaërobic organisms are not simply ordinary saprophytes playing a secondary rôle in connection with other aërobic pathogenic bacteria but are really pathogenic in themselves is supported by numerous facts. In the first place, anaërobes are often in preponderating numbers in these cases of suppuration and, as has been stated, are constant. Again, it is not uncommon to find cases of gangrenous suppuration in which anaërobes are present to the exclusion of all aërobic germs. Most conclusive of all is the experimental production of gangrenous processes by the inoculation of pure or, better, of mixed cultures of anaërobes. In this way, typical lesions are produced, and a microscopic study of these lesions leaves no doubt, according to Rist, that they are produced by the anaërobic organisms injected.

As to the origin of suppuration of this character and the manner in which it occurs, there are many suggestive facts. It is known that the mouth and throat, the intestine, the genital canal in woman, the preputial space in man, also the biliary duct, are the seat normally of large numbers of anaërobic organisms, as well as aërobic, and it seems a remarkable fact that, as a rule, the former are more uniformly pathogenic than the latter and only require such conditions as traumatisms, placental retentions, calculi, some previous aërobic infection or even general weakness and emaciation to set up a fetid gangrenous process. Thus gangrenous processes in the lungs, noma, suppuration in the middle ear and the like may be caused by anaërobic organisms found commonly in the mouth and throat and which from here have found their way to these places. Gangrenous appendicitis is due to anaërobes from the intestine. The putrid infections of the female genital canal are caused by this same class of organisms normally existing in the vagina, which are ever ready to take advantage of favorable conditions for development. Many more examples might be given.

From a practical point of view, evidently, the treatment for such cases must consist in the thorough use of oxidizing agents, such as hydrogen peroxid and permanganate of potash, and as free exposure to the air as possible.

Such facts as the above indicate the importance of a convenient and simple method of growing and isolating anaërobic organisms.

According to Veillon, tubes containing a column of glucose agar, 10 or 12 cm. in depth, serve the purpose excellently. A number of fluid agar tubes, after being boiled, are inoculated with successive dilutions of the material and thoroughly shaken; no vacuum is necessary. In the lower layers, anaërobic colonies will develop and these may be obtained by drawing them into a fine pipette, and they are then studied in pure culture. Certainly with such simple technic a much more careful study of anaërobes should be made, in both surgery and pathology, than is being done at present.

## SOME PRACTICAL LIMITATIONS OF THE GRUBER-WIDAL AGGLUTINATION TEST.

The discovery of a new and valuable aid to diagnosis is sure to be followed by a period during which extravagant expectations are entertained regarding the universal applicability and accuracy of the new method. Sometimes a rapid extension of the method is followed by attempts at simplification and popularization with their attendant dangers. The psychologic disadvantages of a fair degree of success have often been pointed out and they are plainly apparent in this matter of the agglutination test for typhoid fever.

Speaking generally, the appearance of the property of agglutination in the blood serum of a typhoid fever patient is to be considered as a cardinal symptom of the disease. In constancy, this symptom surpasses all others, and in the long run it can be depended on with greater confidence than the isolation of typhoid bacilli from the blood. At the same time, recent experimental studies have shown that the test must be applied with understanding and that the results are not always susceptible of easy interpretation. A recent paper by Scheller[1] emphasizes this aspect of the situation.

In testing numerous samples of human serum for the purpose of typhoid diagnosis, Scheller has encountered a number of anomalous cases, some of which are described in his article. This investigator seems to have recognized fully the multifarious sources of error in the technic of the determination and to have guarded against them with unusual care. The actual observations are therefore deserving of all confidence.

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[2] Bull. L'Inst. Pasteur, No. 1, 1905.

[1] Centralbl. f. Bakt. Orig., 1905, 38, p. 100.

In general, it is true that when specific agglutinating serum and agglutinable bacteria are brought together the reaction manifests itself with progressive intensity. A serum, for example, that fails to agglutinate in a dilution of 1:40 during 15 minutes may produce complete agglutination in this dilution in two hours, and after a longer period may show complete agglutination in a dilution of 1:160. Scheller has found that this rule of progressive intensification is sometimes departed from and that the agglutinative value of a serum may be very low after 15 minutes and very high after a few hours, or may be high after a short period of action and may show little or no increase on long standing. Comparison of two sera after a brief period, therefore, may be wholly misleading as to the final vigor of agglutination. The relative potency of agglutination after 15 minutes' action may be reversed when the comparison is pursued for several hours.

A singular phenomenon was observed by Scheller in one case. A serum that produced complete agglutination in low dilution after 15 minutes at room temperature showed the ordinary progressive intensification on continued maintenance at room temperature, but the control specimen kept at incubator temperature not only showed no increase in agglutination, but exhibited a lesser degree of agglutination after two hours at 37° C. than did the other after 15 minutes at 20° C. It seems possible that in such a case the higher temperature may have brought into play certain inhibitive substances (agglutinoids?) in the serum which were not functional at the low temperature. Whatever be the real explanation of this unusual occurrence, it is evident that the negative result reached by the ordinary procedure of incubation might lend itself to a false diagnosis in the hands of the ordinary observer.

It has been found, further, by this investigator that "inhibition zones" occur in the sera of typhoid patients similar to those sometimes encountered in work with artificially produced immune sera. In these cases the lower dilutions of the sera produce no agglutination, while the higher dilutions have a positive effect. This phenomenon is generally attributed to the presence of agglutinoids which occupy the agglutinogenic receptors of the bacterial cell and thus block the road to the active agglutinins. The absence of agglutination in the usual low dilutions (1:10, 1:40) may therefore in some instances give rise to an erroneous interpretation. In general it must be admitted that the visible manifestation of the agglutinin-agglutinogen reaction, namely agglutination, is dependent only in part on the simple combination of the two substances concerned. It appears wrong to assume that intensity of combination and of agglutinization will follow a parallel course.

The practical conclusions to be drawn from these and from other recent investigations are for the most part such as do not need special elaboration. Not only do numerous opportunities for manipulative error present themselves in the selection, cultivation and use of the typhoid culture employed, but the liability to mistakes of interpretation is shown to be very large.

## TRUTH AND POETRY CONCERNING URIC ACID.

### XIV.

The failure of studies of uric-acid excretion in gout to throw light on the cause of the excess of uric acid in the blood has been made evident. It now becomes necessary to ascertain whether or not studies of the total nitrogen metabolism or researches on the total phosphoric-acid metabolism in gout give us any help in connection with the problem referred to.

Certain earlier studies on the excretion of urea in gout may be neglected since in the determination no attention was paid to the nitrogen intake; moreover, these earlier investigations yielded contradictory results, some of them indicating that the amount of urea excreted in gout is increased, others that it is diminished.

The researches of Schmoll,[1] in 1896, since confirmed by Magnus-Levy, Zagari and others, were among the first that attained to that degree of completeness which makes such studies valuable. Vogel had shown that the excretion of urea is often abnormally low in gout, but Schmoll brought the proof that, at certain periods, the gouty patient excretes less nitrogen than he ingests; in other words, that actual nitrogen retention occurs for a time. This retention is not permanent, however; later comes a period when the nitrogen excreted exceeds in amount the nitrogen ingested, when there is an actual nitrogen deficit. These periods of nitrogen retention and of nitrogen deficit alternate irregularly with each other.

The question at once arose, to what can these disturbances in nitrogenous metabolism be referred? The somewhat similar disturbances which occur in nephritis were thought of, but the explanations given for the conditions in that disease can scarcely hold in gout; in the latter, the urine does not necessarily contain albumin; and, further, the excretion of phosphoric acid, the first to be affected in nephritis, is not markedly altered. Magnus-Levy, however, advanced the view that, in the periods in gout when the total nitrogen excreted is increased, there is actual increased destruction of albumin, probably toxogenic, inside the body. In the periods of nitrogen retention he sees simply a convalescence from the former disturbance, times when the albumin destroyed is being rebuilt. Unfortunately for this view, the body weight during periods of nitrogen retention does not increase as much as it should if albumin is formed from the nitrogen retained; indeed, the body weight may actually decrease during nitrogen retention. Many, with Zagari, will be inclined to regard the form in which the nitrogen is retained as an open question, assuming only that the organism is in some way or another trying to replace a nitrogen loss of the details of which we are also ignorant.

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[1] Schmoll, E.: Stoffwechselversuche an einem Gichtkranken Ztschr. f. klin. Med., vol. xxix, 1896, 510.

Certain other attempts to explain the nitrogen retention must be referred to. Schmoll rejected the hypothesis that it is due to uric-acid retention on the ground that the amount of nitrogen retained is far too great to be thus accounted for, and Hager's supposition that he nitrogen is retained, not as uric acid, but as adenin, may be similarly disposed of. An admirable metabolic research was made by Vogt[2] in 1901. He showed that the nitrogen retention is not explicable by an increase in albumin, for while the retention in one instance amounted to as much as 24.6 grams of nitrogen, the patient remained in phosphoric-acid equilibrium. Nor is it referable to the retention of total nuclein, for when nuclein was fed to his patient its phosphoric-acid content was promptly excreted, while the nitrogen excretion remained further than ever behind the nitrogen intake. He concluded, therefore, that the retention is at least partly due to purin nitrogen, the nucleins absorbed being split at once into phosphoric acid and purins, the excretion of the latter being delayed, thus indicating a high degree of sluggishness of purin metabolism in gout. Vogt admitted, however, that there are probably still other reasons for the nitrogen retention.

The most careful investigation of the phosphoric-acid metabolism in gout we owe to Kaufmann and Mohr[3] (1902), who first thoroughly examined the "phosphoric-acid balance." They undertook their studies in the hope that the results would help them to decide whether the loss of nitrogen at certain periods in gout is due to the breaking down of albumin or to the sweeping out of "slag," and whether the nitrogen retention at other periods indicates an increase of albumin or merely a retention of end-products. They have concluded that no single explanation of retention or deficit of nitrogen is valid; on the contrary, nearly all contradictions vanish, they think, if we assume that entirely different processes, increase and destruction of albumin on one side, retention and "sweeping out" on the other, may be going on in a variable manner in different individuals and in different phases of gout.

Having thus shown that the nitrogen-excretion alone is not a safe criterion for judging of the causes of the alteration in uric-acid excretion, they turned to the phosphoric-acid excretion. In 1901, Loewi had suggested that the behavior of the latter in gout indicates that uric acid is retained in the disease; in health, on a constant diet, he found a constant relation between uric-acid excretion and phosphoric-acid excretion, while in gout the quotient deviated from normal and indicated uric-acid retention. Kaufmann and Mohr, however, find the quotient to be within normal limits, and, further, call attention to the fact that phosphoric-acid excretion varies with the varying needs of the body for phosphoric acid. Accordingly, it is unsafe to use the phosphoric-acid excretion or its relation to uric-acid excretion as evidence for the view that the cause of the excess of uric acid in the blood in gout is uric-acid retention.

## THE CONFERENCE AT THE WISTAR INSTITUTE.

Anatomy in America has been making progress by great strides during the last decade. University after university has established a professorship of the modern type in this subject. Men of thorough scientific training, who give their whole time to the teaching and investigation of anatomy, have been appointed to the chairs. Well-trained assistants are being developed, and in many schools liberal budgets for equipment and supply and expense now are regarded as necessary and no longer as merely desirable. *The American Journal of Anatomy* offers a worthy medium for the publication of the researches of American anatomic workers. The outlook for anatomic science in this country, if we may judge by the immediate past, is promising; and the Conference of Anatomists held at the Wistar Institute of Anatomy in Philadelphia last week makes the future even brighter. The Wistar Institute, founded some years ago, was intended to house safely the old Wistar and Horner Museum, to add to that museum, and, in general, to further the interests of anatomy in Philadelphia and in America. Under the directorship of Dr. Jayne, the present state of the institute has been developed. The collections already accumulated have been adequately cared for and several phases of the museum side of the foundation have received the attention they deserve. As far as the exhibiting side of the museum is concerned it is a model for other institutions to follow. On the retirement of Dr. Jayne, the directorship was accorded to Dr. Wm. G. Greenmann. The new director suggested to General Wistar, who is the principal donor, and to the other members of the board of managers, that some ten of the leading representatives of American Anatomy be invited to a conference at the Wistar Institute for the purpose of suggesting ways and means by which the institute can be made more helpful to the science of anatomy as a whole. This idea was favorably received and acted on and a conference was held the early part of last week. The detailed results of the proceedings have not been made public, but we understand that several important recommendations were made, among others the formation of a so-called "Central Institute" for neurologic, comparative anatomic and embryologic purposes, the collection and arrangement of donated specimens, the preparation of original material, the carrying on of active investigation along certain anatomic lines in the institute itself by paid investigators of a high order, and the maintenance of a permanent advisory board composed of anatomists from various parts of the country. Should the authorities of the Wistar Institute decide to act on the suggestions offered, the influence of the institution is sure to be widely felt. Ultimately, of course, large funds will be necessary, but the income available at the present time is sufficient to permit of much good work in the directions indicated, and as new gifts accumulate the income will gradually be increased. It is matter for gratification to the medical profession of this country that the management of the institute has entered into this close relationship with the working anatomists of America. Anatomists can help the institute and the institute can help anatomy. We trust that the *entente cordiale* which has been established may be permanently maintained.

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[2] Vogt, H.: Ein Stoffwechselversuch bei akuter Gicht. Deutsche Arch. f. klin. Med., vol. lxxi, 1901, 21.

[3] Kaufmann, M., u. Mohr, L.: Beiträge zur Alloxurkörperfrage und zur Aetiologie der Gicht. 3 Teil, Stoffwechselbeobachtungen bei 5 Gichtkranken Deutsche Arch. f. klin. Med., vol. lxxiv, 1902, 586.

### THE DANGERS OF SMALLPOX HOSPITALS.

The recent epidemics of smallpox in this country and abroad have strongly emphasized the value of vaccination and have also led to the restudy of various phases of this interesting disease. Among other aspects of the question, the relation of smallpox hospitals to the surrounding community has been reconsidered. The views of the profession on this subject have certainly not been unanimous. Excellent physicians have asserted that the isolated position usually chosen for such institutions is totally unnecessary, and that smallpox cases are no more infectious than cases of measles or scarlet fever. The recent statistics of Buchanan[1] show that this is not the case. This observer compared the house incidence of smallpox in houses within one and a half miles of the smallpox hospital with that in the remainder of the city of Gateshead. He showed that of the houses within a quarter of a mile of the hospital 82 per 1,000 were invaded, of those within half a mile 47 per 1,000, while in the rest of the city only 14 per 1,000 were attacked. Whether this was due to aërial conveyance of the disease, as Buchanan believes, or to contact infection from convalescents, which must be considered, the figures speak for themselves and indicate that the old plan should be adhered to.

### ANTIRABIC INOCULATIONS AT THE PATIENT'S HOME.

It is possible that there are yet some who doubt the existence of rabies in man as a disease entity, and there may also be some who are still skeptical as to the utility of Pasteur's method of inoculation by means of attenuated virus obtained from the spinal cord of rabbits destroyed by means of a potent virus. Nevertheless, this method of treatment has demonstrated its efficacy and has been adopted, and institutes for its application have been established, in all civilized countries. It must be borne in mind that the treatment is not curative, but prophylactic, and that its success is the greater and the more certain the earlier it is instituted in the long period of incubation following the infecting wound, the object being to establish immunity before the development of the symptoms of the disease proper. It has been shown that when the treatment has been begun at once, the disease is invariably aborted, but the supposed necessity for having this done in an institute, often situated at a considerable distance from the patient's home and entailing at times a prohibitive expense, in many instances has prevented the employment of the procedure. It will be interesting, therefore, to know that this necessity no longer exists, and that the Pasteur Institute of the Department of Health of the City of New York, in addition to making antirabic inoculations itself, is prepared to send virus to a distance.

### MEDICAL ASSOCIATION AGAINST WAR.

At a recent meeting of medical men in Paris, a very unique society was formed, the International Medical Association against War, whose object is to do away with war. The promoter is Dr. Rivière of Paris, who was elected the first president of the association. It is argued by the founders of the society that medical men, who are so intimately acquainted with human misery, both physical and moral, are by that very fact most fitted to collaborate in the great work of substituting arbitration for war. No mention is made as to how this association expects to carry out its work, nor where it will make a beginning. However, we venture to offer a suggestion, namely, that a most splendid opportunity presents itself for a maiden effort in Russia and Japan.

### A CREDITABLE HOSPITAL REPORT.

The Central State Hospital of Virginia, under the superintendency of Dr. Wm. F. Drewry, presents a very creditable report for its last fiscal year. In this institution 1,334 persons with various mental disorders received careful individual treatment at an average per capita cost for the year of $89.11. (In this calculation there is excluded the cost of permanent improvements, insurance, etc.) The superintendent refers with just pride to the fact that not one patient "was subjected to any mechanical restraint," that "over 50 per cent. occupy unlocked rooms at night," and that "there has not been during the year a suicide, homicide or any gross violation of propriety." This speaks well for the assistants and attendants, as well as for the superintendent. Individualization in treatment is followed as far as possible. Tents are used for consumptives and a colony for epileptics, and all who are able engage daily in some kind of work or suitable recreation. The report includes an historical sketch of the hospital and its management. One interesting fact is that this institution was perhaps the first of its kind in the South to establish a separate building for the treatment of the epileptic insane.

### THE IMPORTANCE OF THE ANESTHETIC.

That the responsibility for the life of the patient, in many cases, rests with the anesthetist is a fact not generally appreciated. Too often the anesthetist is more interested in the details of the operation than in the anesthetic, though in many cases the danger to the patient from the anesthetic is greater than from the operation. The anesthetist should remember that he holds the patient's life in his hands and should allow nothing to distract his attention or to hurry him—not even an impatient surgeon. The administration of anesthetics should be a specialty in itself and a successful anesthetist should be specially fitted for the work and should concentrate all his thoughts on his task. One who is possessed of sufficient tact and sympathy to win the patient's confidence and to allay his very natural apprehension and his fear of the anesthetic will find that the patient takes the anesthetic better, requires less of it, and suffers less from the after-effects. A patient who is not afraid of the anesthetic breathes more naturally and thus inhales the fumes without swallowing them; in this way the chances of post-anesthetic vomiting are lessened. In such cases, the stage of excitement is shorter than in those in which the patient is nervous and frightened. A careless anesthetist often allows a patient to come partly from under the influence of the anesthetic and then "crowds" it in order to prevent a complete return of consciousness. A skillful anesthetist, on the other hand, keeps the patient under to the required degree, seldom uses tongue forceps or mouth gag, with the result that the patient is generally completely relaxed and quiet during the operation. It is seldom necessary to administer morphin or other drugs beforehand and the use of atropin as a routine procedure should be condemned, if for no other reason than that it masks the eye symptoms of impending collapse and of returning consciousness. The importance of this subject should be given more recognition by our medical colleges, and no student should be allowed to receive his degree unless he has had individual instruction therein.

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[1] London Lancet, Feb. 4, 1905.

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# *Medical News*

## CALIFORNIA.

**Sanatorium Burned.**—The California Sanatorium at San Bernardino was burned by fire early on the morning of March 31, the damage being about $4,000. The patients were removed without casualty.

**State Board of Health Reorganizes.**—On April 1 the State Board of Health met for reorganization at Sacramento, reelected Dr. Martin Regensburger, San Francisco, president; Dr. Wallace A. Briggs, Sacramento, vice-president, and Dr. Newell K. Foster, Oakland, secretary, and elected George D. Leslie, vital statistician.

**Personal.**—Dr. and Mrs. Frederick H. Tebbe, Etna Mills, had a narrow escape from death March 24, when their horses took fright and threw them sixty feet down a precipice. Fortunately, they sustained no injury aside from shock.——Dr. Sarah Vason, Philadelphia, has been elected superintendent of the Kaspare Cohn Hospital, Los Angeles. Drs. Philip Newmark, David W. Edelmann, Edmond M. Lazard and Adolph Tyroler have been appointed to the medical staff of the institution.

**The Troubles of Unlicensed Practitioners.**—I. H. Story, a "chiropractic" of Los Angeles, was found guilty of practicing medicine without a license March 25, and fined $125.——Ivan McLaughlin, Los Angeles, pleaded guilty to the charge of having given electrical treatments without a physician's license and was fined $100.——"Dr." William A. Anderson, who had been practicing medicine in Imperial for over a year, was arrested March 17 for practicing without a state license. He was taken to Brawley for a preliminary hearing, was ordered under bonds and had his trial set for the following Monday. After his return to Imperial he escaped from the officer in charge and fled into old Mexico. He was recaptured and taken to Brawley, but before the hour set for trial he again made his escape and has not been heard from since.

## CONNECTICUT.

**February Mortality.**—There were 1,362 deaths in February, equivalent to an annual death rate of 16.8. The deaths were 49 less than in January and 61 in excess of the average for February for the five preceding years. The deaths from infectious diseases numbered 170, or 12.4 per cent. of the total mortality. The principal death causes were: Pneumonia, 222; nervous diseases, 155; consumption, 121; heart diseases, 120; influenza, 90; violence, 62, and bronchitis, 52.

**Personal.**—Dr. Harry C. Clifton has been appointed city physician of Hartford, vice Dr. Irving D. Blanchard.——Dr. Lewis Beers Porter, New Haven, has been appointed resident physician at the Manhattan Eye, Ear and Throat Hospital, New York City.——Dr. Henry P. Stearns, Hartford, after thirty-one years' service, has resigned the superintendency of the Retreat for the Insane, and has been succeeded by Dr. Whitefield N. Thompson, formerly of Brattleboro, Vt.

**Biennial Hospital Appropriations.**—The appropriations committee has reported the following appropriations: Hartford Hospital, $20,000; General Hospital Society of Connecticut, $20,000; Grace Hospital, New Haven; Grace Hospital, Bridgeport; Grace Hospital, Norwalk; Memorial Hospital, New London; Memorial Hospital, Waterbury; St. Francis' Hospital, Hartford; St. Francis' Hospital, Stamford, and St. Francis' Hospital, New Britain, $10,000 each; Danbury Hospital; Day-Kimball Hospital, Putnam; Litchfield County Hospital, Winsted; Meriden Hospital, and Middlesex Hospital, $6,000 each.

## IDAHO.

**Examiners Meet.**—The State Board of Medical Examiners held an examination of applicants for licenses to practice medicine in Idaho, at Boise, April 4 and 5.

**Personal.**—Dr. Abraham L. Lehman, Wallace, sails for Europe, April 29.——Dr. J. B. Cooper, Boise, who held a license under the old law, but was charged with practicing medicine without a license, was found not guilty.

**South Idaho Society Election.**—The South Idaho District Medical Society met April 6, at Boise. The following officers were elected: President, Dr. James L. Stewart, Boise, and vice-president, Dr. James H. Bean, Pocatello. The session closed with a banquet at the Idanha Hotel.

## ILLINOIS.

**Smallpox Stamped Out in DeKalb.**—DeKalb, by enforced vaccination and rigid quarantine, has brought under control in four weeks a threatened epidemic of smallpox.

**Interne Examination.**—An examination for three interneships in the Illinois Charitable Eye and Ear Infirmary will be held at the infirmary, 227 West Adams Street, Chicago, May 3 and 4, beginning at 2 p. m. The service is for one year, beginning June 1.

**Tuberculosis Sanatorium.**—The Glackin bill providing for the erection of a state sanatorium for persons afflicted with tuberculosis has been favorably recommended by the house committee on appropriations, but the sum to be appropriated has been reduced from $200,000 to $50,000.

**Hospital Annex Opened.**—About one hundred physicians of Kane County and the counties adjacent attended the opening ceremonies of the annex to Sherman Hospital, Elgin, April 14. The addition nearly doubles the capacity of the institution, which can now accommodate 52 patients. The new building was erected at a cost of about $32,000.

**National Guard Medical Department Examination.**—An examination of candidate medical officers of the Illinois National Guard will be held April 29, at Senn Hall, Rush Medical College, Chicago, beginning at 9 a. m. The examining board is composed of surgeon-general, Col. Nicholas Senn; assistant surgeon-general, Lieut.-Col. G. Paull Marquis; Surgeon-Major Charles Adams and Surgeon-Captain S. C. Stanton.

**Methods of Sewage Disposal.**—The State Board of Health is about to make an exhaustive investigation into the methods of sewage disposal in the smaller cities of the state to remedy, so far as is possible, faulty conditions which may exist. The investigations will cover the various septic tanks in use to determine the degree of purification secured, and to what extent this method of purification may be recommended.

**Osteopathic Legislation.**—Senate bill No. 311, providing for the appointment of a board of osteopathic examiners consisting of five members, "two of whom shall be graduates of a complete course in surgery," conferring on osteopaths the right to practice osteopathy, obstetrics and surgery and to use antiseptics, anesthetics and antidotes for poisons, requiring the board to issue "osteopathic physician's certificates," and making all statutory regulations controlling infectious and contagious diseases, and all requirements of public health acts apply to practitioners of osteopathy, was taken up for third reading, April 19. It is announced in the Springfield press that the sentiment of the senate is against the bill, but that it will be passed because of the popularity of its author, Senator Chaffee, who is deeply interested in the measure and is very anxious to have it given a trial on the statutes.

### Chicago.

**Illegal Practitioner Fined.**—Mrs. Anne Borgard was fined $100 by Justice Chott, April 14, for practicing medicine without a certificate from the State Board of Health.

**Hospital Incorporated.**—The Chicago Emergency Hospital has been incorporated with a capital stock of $25,000 by Dr. Richard M. Fletcher, Anna Fletcher and W. M. Ford.

**Deaths of the Week.**—The total deaths for the week ended April 15 were 548, equivalent to an annual mortality of 14.35 per 1,000. Pneumonia caused 84 deaths; consumption, 59; nephritis, 55; heart diseases, 51; violence 45; bronchitis, 30, and cancer, 23. Measles and whooping cough are each reported to have caused 15 deaths.

**Comparative Mortality by Decades.**—Dr. Arthur R. Reynolds, at the close of his tenth year as Commissioner of Health, notes graphically the decrease in mortality in the city as compared with the previous decade. The annual mortality rate has decreased from 20.2 to 15.1 per 1,000, or 25.3 per cent. Of this saving 73.4 per cent. was among infants and children below the age of 5. There was a reduction of 86.2 per cent. in the mortality from smallpox; of 64.3 per cent. in that from diphtheria; of 59.5 per cent. in that from typhoid fever and diarrheal diseases; of 58.9 per cent. in that from measles; of 55.5 per cent. in that from scarlet fever; of 27.2 per cent. in that from whooping cough, and of 13.7 per cent. in the mortality from tuberculosis. Cancer shows an increase of 22.8 per cent.; influenza of 145 per cent.; pneumonia of 92.6 per cent.; nephritis of 172.9 per cent., and heart disease, 120.6 per cent. Among other important causes of death which show decreases in the second decade are bronchitis, 41.3 per cent.; cerebral apoplexy, 23.4 per cent., and nervous diseases, 45.8 per cent. With these decreases neither medical science nor sanitary administration can claim to have had much to do. They must be attributed to the general improvement of physique and increased vitality of the people of Chicago, due to saner modes of life, to better personal hygiene and to that popular education in sanitary matters which has made such vast strides in the last quarter of a century.

### INDIANA.

**Sanitarium Burns.**—The Abbott Sanitarium, southeast of Fort Wayne, was burned early on April 6, with a loss of $35,000.

**Shot by Insane Man.**—Dr. Ira M. Washburn, Rensselaer, captain and assistant surgeon in the Indiana National Guard, was shot in the leg by an insane man, April 3.

**Personal.**—Dr. James N. Hurty, secretary of the State Board of Health, has received notice that he has been awarded a gold medal by the Louisiana Purchase Exposition.

**Medical Graduates.**—A class of 79 was graduated from the Medical College of Indiana, Indianapolis, at its thirty-fifth annual commencement exercises, held April 19. Prof. Stanley Coulter of Purdue University delivered the doctorate address.

**Money for Hospitals.**—St. Joseph's Hospital, Logansport, has received the estate of the late Father Marks, valued at $1,432.84.——The late Mrs. Anna Cage, Kokomo, bequeathed $5,000 to the city, to be made the nucleus of a public hospital fund.

**Resurrection Cases Dismissed.**—The five pending grave robbery cases against Dr. Joseph C. Alexander, late demonstrator of anatomy at the Central College of Physicians and Surgeons, Indianapolis, were dismissed April 11 on the ground that the defendant had not been retried on the original indictment nor on four others within three successive terms of court.

**Personal.**—Dr. George F. Edenharter, Indianapolis, superintendent of the Central Indiana Hospital for the Insane, has been for the fourth time reappointed superintendent for a term of four years.——Dr. William J. Fernald, Frankfort, sailed for Europe, April 8.——Dr. Elmer E. Morgan, Fort Wayne, was painfully but not seriously injured April 6, when his horse plunged over an embankment in the dark.

### MARYLAND.

**Meningitis Serum Experiments.**—The State Board of Health has been experimenting on rabbits with a view to securing a protective serum for cerebrospinal meningitis.

**State Hospital Staff Changes.**—Dr. Robert F. Winterode, formerly pathologist, has been promoted to second assistant physician and director of the laboratory at Spring Grove Asylum for the Insane, and Dr. Thomas A. Hurley, clinical physician, has been made pathologist.

**Medical and Chirurgical Faculty.**—The subject of Dr. Edward N. Brush's presidential address before the Medical and Chirurgical Faculty of Maryland, April 25, will be "The Physician as a Citizen." At the session to be held at the Shepherd and Enoch Pratt Hospital, April 26, Dr. Simon Baruch of New York will speak on "The Physiologic Basis and Clinical Effects of Hydrotherapy in Chronic Disorders." The annual oration of Dr. William Osler on April 27 will be on "Unity, Peace and Concord." Immediately thereafter a portrait of Dr. Osler will be presented to the Faculty by his friends, Dr. George J. Preston making the presentation speech.

### Baltimore.

**Personal.**—Dr. Carville V. Mace, Rossville, who was operated on April 1, for stone in the kidney, is rapidly improving. ——Dr. Roland Whitbridge will spend the summer in Europe.

**St. Joseph's Hospital Report.**—The report of St. Joseph's Hospital for 1904 shows that 7,771 cases were treated in the dispensary. The work of the hospital, which is in charge of the Sisters of St. Francis, is increasing rapidly and the new buildings are fully occupied.

**Work Against Tuberculosis.**—The educational committee of the Maryland Association for the Prevention and Relief of Tuberculosis reports that during March 13 public lectures were given by the committee, mostly in crowded neighborhods, to more than 1,500 persons. Great stress was laid on the communicability, preventability and curability of the disease.

**Will Be Painted by Sargent.**—It is said that Drs. William H. Welch, William S. Halstead, Howard A. Kelly and William Osler, all of the original faculty of Johns Hopkins University, will meet in London during June and will then sit for a group portrait to be painted by John S. Sargent. The idea originated with Miss Mary E. Garrett of this city, the benefactress of the Johns Hopkins Medical School, who will bear the expense of the painting. Dr. Osler's departure is the first break in the original faculty of the medical school.

**Baltimore Needs Sewage System.**—The question of a sewerage system is being pushed with great vim and enthusiasm and in a few days a vote will be taken on the question of a loan with which to carry out this necessary improvement. Dr. Welch has said that "there is probably no other civilized city of the size and importance of Baltimore, certainly not in England, France, Germany or this country, which continues as this city has done to neglecet these fundamental demands of hygiene, and no such backward city can hope to maintain its position as an attractive and desirable place either of residence or of business."

### MICHIGAN.

**Money for Hospital.**—James J. Hurley, who died in Flint, April 4, left a bequest of $25,000 to found a hospital for the city.

**Health Conference.**—The annual conference of health officials will be held June 1 and 2 at the State Laboratory of Hygiene, Ann Arbor.

**Medical Mayors.**—Dr. George E. Reycroft has been elected mayor of Petoskey.——In a contest for the mayoralty of Mason, Dr. William W. Root defeated Dr. Frank E. Thomas.

**Comparative Morbidity.**—For March, compared with the average for the ten years from 1895 to 1904, smallpox was more than usually prevalent, and pleuritis, pneumonia, erysipelas, intermittent fever, inflammation of bowels, measles, remittent fever, diphtheria, inflammation of brain and meningitis were less than usually prevalent.

**The Most Dangerous Communicable Diseases.**—Meningitis was reported during March at 13 places; whooping cough at 18 places; diphtheria at 59 places; measles at 79 places; typhoid fever at 95 places; smallpox at 101 places; scarlet fever at 133 places; pneumonia at 144 places, and consumption at 221 places. Meningitis was reported present at 6 places more; whooping cough at 2 places more; diphtheria at 5 places less; measles at 11 places more; typhoid fever at 2 places more; smallpox at 5 places less; scarlet fever at 28 places more; pneumonia at 2 places more, and consumption at 30 places less in March than in the preceding month.

**Personal.**—At the annual meeting of the State Board of Health, April 14, Dr. Victor C. Vaughan, Ann Arbor, was unanimously re-elected president of the board.——Dr. Frank W. Shumway, Williamston, has been appointed secretary of the State Board of Health, vice Dr. Henry B. Baker.——Dr. George Bunch has resigned the position of assistant physician of the Wolverine Mining Company, Calumet.——Dr. W. A. Burnham, surgeon to the Trimountain Mining Company, Calumet, has resigned, and has been succeeded by Dr. Edward V. Howlett.——Dr. William T. Morrison, Midland, who has moved to Pigeon, was the guest of honor at a banquet of the Midland County Medical Society, March 24.

**Dr. Baker and the State Board of Health.**—Henry B. Baker, secretary of the State Board of Health since its organization in 1872, to whose untiring zeal in public health work this board owes its high reputation, has been found by the dominant party in the state to be *persona non grata* and has been unceremoniously legislated out of office. His friends state that Dr. Baker has probably done more than any other man in this state to lessen sickness and death, but this counts for nothing when the politician demands his decapitation. The only sins that he is charged with are holding office too long and doing his duty too strenuously. Dr. Baker can, however, always have the consciousness of duty well done and he can better afford to bear this treatment, so undeserved, than the state can to bear the odium of having dismissed without ceremony one who has done so much for the welfare of its people.

## MISSOURI.

**Unlicensed Practitioner Fined.**—In Justice Montgomery's court at Memphis, April 4, Dr. John M. Davis, Hamilton, Ill., was found guilty of practicing medicine without a license and was fined $100 and costs.

**Trial Avoided.**—To avoid the useless expense of a trial to the county, the prosecuting attorney dismissed the case against Dr. Annette H. Wagoner, Kansas City, charged with having caused the death of Mrs. Zeebe, by a criminal operation.

**Personal.**—Dr. Valentine R. King, Hopkins, has been appointed assistant superintendent of the National Cemetery, Mound City, Ill.——Dr. Larkin H. Callaway has succeeded Dr. Joseph F. Robinson as superintendent of State Hospital for Insane No. 3, Nevada.

**Kansas City Commencements.**—University Medical College held its twenty-fourth annual graduating exercises April 8, at which a class of 58 received diplomas. The address to the class was delivered by J. Willis Gleed.——The Medico-Chirurgical College graduated a class of 16 at its eighth annual commencement, held April 12. Rev. F. C. McConnell delivered the doctorate address. The college has been merged into the medical department of the University of Kansas.——Kansas City Medical College delivered diplomas to a class of 35 at its commencement exercises, April 11. Senator Warner and Chancellor Frank Strong of the University of Kansas delivered addresses.

### St. Louis.

**Exclusive Physicians' Building.**—The Lister Building at Olive Street and Taylor Avenue is devoted exclusively to the housing of the offices of medical men. Another building, the Humboldt, is in course of erection at Grand and Washington Avenues. Medical men are deserting the downtown skyscrapers for these modern buildings in the residence portion of the city.

**Medical Library in Own Building.**—The St. Louis Medical Library Association is now comfortably housed in its own building at 3525 Pine Street. This building is also used as a meeting place for all the medical bodies of the city. A movement is on foot to build an annex to the library building in the shape of a suitable auditorium for the holding of the meetings of the St. Louis Medical Society and other medical bodies.

**Personal.**—Dr. Ralph Thompson, associate professor of pathology at the St. Louis University, sails for Europe, April 27, to spend six months in research in the Berlin laboratories of pathology.——Dr. Harry P. Wells was severely burned on the hands and arms by the explosion of an alcohol lamp in his office, April 8.——Dr. Hillel Unterberg has been appointed psychiatrist and neurologist at State Hospital for Insane No. 3, Nevada.

**Sanatorium Bill Signed.**—Governor Folk has attached his signature to the bill recently passed by the legislature creating the Missouri State Sanatorium for the Treatment of Incipient Tuberculosis. This bill carried with it an appropriation of $50,000 to erect the sanatorium in some mountainous part of the state. The site is not specifically selected in the bill.—May 10 the St. Louis Medical Society and the Medical Society of City Hospital Alumni will give a testimonial banquet to the medical members of the last legislature who were so active in the passage of legislation of benefit to the medical profession, particularly that legislation which has created the State Sanatorium for Tuberculosis.

**Clarification of St. Louis Water.**—A symposium on the present system of clarification of the St. Louis water supply was held at the meeting of the St. Louis Medical Society, April 15. Mr. John Wixford, chemist of the water department, explained the present effective process of treating the St. Louis water. This system consists in mixing solutions of sulphate of iron and lime with the water as it is pumped from the Mississippi River. The results achieved by this simple, cheap and harmless method of purifying water are remarkable. St. Louis now has clear water. Papers read showed a decrease in the number of typhoid cases in this city. The city bacteriologist showed that the present system of clarification rids the water of about 94 per cent. of the bacteria.

**Fighting for Betterments.**—The combined medical profession of St. Louis is endeavoring to change the management of the St. Louis City Hospital. The end in view is to have an organization like that of the Boston City Hospital or that of the Cook County Hospital, Chicago, namely, a board of governors or supervisors for the hospital, who shall select a competent medical staff and shall bring the hospital under modern management. At the present time the City Hospital has no regularly appointed medical staff. The internes have no guidance save that of the senior assistants, assistant superintendents and superintendent. The present superintendent is doing well in spite of the bad system under which he is forced to work, and he is in hearty accord with the movement to change the system of management.

## NEW YORK.

**Gifts to Nassau Hospital.**—Mrs. Robert J. Dietz has given $3,600 to this institution at Mineola, L. I., in memory of her husband; Mrs. W. K. Vanderbilt, Jr., $2,000; W. B. Leeds, $3,000, and George Arents, $1,000. There will soon be sufficient to endow additional beds and possibly to enlarge the hospital.

**Bills Passed.**—All the bills adjusting the water supply of New York City have been passed by the assembly.——The Fish bill abolishing the boards of visitation of the lunacy commission and creating local boards of managers of the state hospitals has passed.——The annual supply bill which carried additional appropriations of $3,000,000, after some difficulty over appropriations of $3,505 and $904 for deficiency in the lunacy commission to make up losses by defalcations in the offices of two of the state hospitals, has also passed.

### New York City.

**More Milk Inspectors.**—The Board of Councilmen has voted $5,000 for additional milk inspectors for the Health Department of Buffalo.

**Personal.**—Dr. Samuel Gluck lost several valuable books as the result of a fire in his home.——Dr. George T. Harrison arrived from Europe April 13.

**Fever-stricken Ship.**—The British steamship *Osceola*, which arrived from the River Plate, had three of her crew sick with a fever resembling malaria and two died at sea. One of these had a temperature of 109 degrees.

**City Death Rate Low.**—The statement of the Health Department issued on April 13 shows that the death rate for the week preceding was at the rate of 20.11 per 1,000 per *annum*, which is a decrease of 5.65 over the corresponding week of last year.

**Hospital Sunday Collection.**—The Hospital Saturday and Sunday Association reports that the collection on Hospital Sunday will amount to about $92,000, a gain of nearly 25 per cent. over last year. This fund will be distributed among the 40 hospitals in the association.

**To Teach Prescription Writing.**—As so many physicians are deficient in prescription writing the Kings County Pharmaceutical Society has undertaken the task of familiarizing physicians with the National Formulary compounds. A canvasser has been employed to visit physicians and show them how they can become more expert in prescription writing.

**A Hospital Island.**—Secretary Metcalf has awarded the contract for the construction of an island in New York harbor on which will be built one of the finest institutions in the world for the treatment of contagious diseases, and will be an addition to the immigrant station now at Ellis Island. It is expected that this model modern hospital will be completed within two years.

**Contagious Diseases.**—There were reported to the sanitary bureau for the week ended April 8, 441 cases of tuberculosis, with 201 deaths; 422 cases of measles, with 13 deaths; 339 cases of diphtheria, with 27 deaths; 259 cases of scarlet fever, with 7 deaths; 191 cases of cerebrospinal meningitis, with 110 deaths; 26 cases of typhoid fever, with 13 deaths; 94 cases of chickenpox and 4 cases of smallpox.

**Buffalo Personals.**—Dr. Charles F. Durant has been appointed superintendent of the Quarantine Hospital.——At the recent examination for police surgeon the following were placed on the eligible list: Drs. William H. Marcy, George H. Westinghouse and Grosvenor R. Trowbridge.——Dr. Francis M. Rich was fined $10 for failing to report a case of scarlet fever. He claims that the case was not one of scarlet fever.

**In Behalf of the Polyclinic.**—In a letter to the *Sun* Dr. John A. Wyeth sets forth the value of the work done by this institution and appeals for aid. He describes the new building which has been undertaken with its larger dispensary, hospital and laboratory facilities, and says that it will require $300,000, of which $37,000 has been subscribed this year by the medical staff, and a donation of $20,000 has also been made.

**New Floating Hospital.**—The Burlee Shipbuilding Company has almost completed a floating hospital for the Health Department, which is 126 feet long and 30 feet beam, and will accommodate 160 patients. The boat is so constructed as to provide wards for any kind of contagious disease, and at the same time prevent the germs of one disease from reaching another ward. The boat will cost about $70,000 and will be put into commission about October 1.

**Creameries Inspected.**—Dr. Darlington of the Health Department of New York City, together with the chief milk inspector, chief sanitary inspector, milk inspector and photographer of the department, have made an inspection of the creameries along the line of the D., L. & W. Railroad. They report that the creameries are in much better condition than they were a year ago. Dr. Darlington has entered into a combination with Health Commissioner Greene of Buffalo and Commissioner Wheating of the State Agricultural Department to reach all the milk dairies of the state.

**No Danger from Zoo Tuberculosis.**—City Bacteriologist Bissell of Buffalo has submitted his report on the subject of recent investigations into the tuberculosis in the elk and red deer paddock at the park zoo, with special reference to the probable danger, through infection to visitors and persons living contiguous to the park. No danger is to be apprehended from this source. He recently took cultures from the soil of paddocks to ascertain how much tuberculosis it contains. The report states that since 1898, 20 elk, 7 red deer, 2 buffaloes, 3 monkeys and one wolf have died from tuberculosis. He states that there is more danger from the ordinary danger of street dust than from this soil. Disinfection of the soil is, therefore, not recommended.

## PENNSYLVANIA.

**Anonymous Donor.**—A woman of Allentown has donated $6,000 to the Allentown Hospital for the erection of a sun parlor.

**Interne Examination.**—The Chester County Hospital, West Chester, will conduct its examination for resident internes in the hospital building, April 30.

**State Board Examinations.**—Examinations of the State Medical Examining Board will be held June 27, 28, 29 and 30, at Industrial Hall, Philadelphia, and the Pittsburg Academy, Pittsburg.

**Vaccination Bill Passed.**—The bill providing for compulsory vaccination of inmates in all institutions receiving state aid was passed by the house, April 11. The bill was once defeated, but passed finally by a vote of 158 to 4.

**Appropriations.**—The following appropriations have been made by the legislature: State Hospital, Blossburg, $16,000; State Cottage Hospital, Connellsville, $21,940; Christian H. Buhl Hospital, Sharon, $19,500; State Hospital, Scranton, $255,000, and Packer Hospital, Sayre, $24,000.

**Tuberculosis Society Meets.**—The thirteenth annual meeting of the Pennsylvania Society for the Prevention of Tuberculosis was held in Philadelphia, April 12. The election of officers resulted as follows: President, Dr. Joseph Walsh; vice-presidents, Drs. Howard S. Anders, Mazyck P. Ravenel, William B. Stanton, Albert E. Roussel, Daniel J. McCarthy, Josephus T. Ullom, Seneca Egbert, Lawrence Flick, Benjamin Lee, Samuel Dixon, all of Philadelphia; Dr. William T. Cummings, Media, and Messrs. Talcott Williams, Samuel Castner and Samuel Scoville, Jr.; secretary, Dr. Ward Brinton, Philadelphia.

**Osteopathic Bill Passed.**—The bill licensing osteopaths to practice in the state, which failed to pass a short time ago, finally passed the house, April 11, by a vote of 104 to 50. Every effort is being made by the regular school and the homeopathic school to have the governor veto the measure, and it is generally believed that the effort will be successful. The bill is most ingeniously constructed. It appears to place severe restrictions on the osteopaths, but in fact gives them a privilege enjoyed not even by the practitioners of the other schools, namely, that it permits them to undergo an examination conducted by five osteopaths instead of taking the regular examination, as required by the regulars, homeopaths and eclectics. The examination papers of all these schools are the same in all branches, except in materia medica. It is considered strange by the opponents of the bill that osteopaths, if, as they assert they are, carefully schooled in all branches of medical knowledge, should avoid taking the regular examination, as this, if passed successfully, would give them the right to practice any sort of healing they desire.

### Philadelphia.

**Milk Inspection Report.**—The report of the Health Bureau from the division of milk inspection shows that during March 4,743 inspections were made. The total quantity of milk inspected was 143,118 quarts; 129 chemical and 740 microscopical examinations were made of specimens, and 1,755 quarts were condemned.

**Bacteriologic Work for March.**—The report of the bacteriologic laboratory of the Bureau of Health shows that 1,513 diphtheria examinations were made and 536 examinations of the blood for typhoid; that 733 bacteriologic investigations were made of milk, and 189 of sputum, and that 1,135 doses of antitoxin were issued.

**Typhoid Fever Condition.**—The weekly reports of the Bureau of Health for March show 1,054 cases of typhoid fever in the city. Of this number only 3 occurred in the filtered water district of West Philadelphia; only 16 in the Roxborough filtration district; while 101 occurred in that part of West Philadelphia not supplied with filtered water.

**Work of Medical Inspectors.**—During March the number of inspections of individuals made, excluding schools, was 3,942; 614 fumigations were ordered; 49 cases were examined for special diagnosis, and 6,519 examinations were made in the different schools. The number of children excluded from the schools as a result of these inspections aggregated 1,097. There were also 355 cultures taken, 79 injections of antitoxin administered, and 765 vaccinations performed.

**Reception to Medical Society.**—Dr. Charles K. Mills, professor of neurology in the University of Pennsylvania, entertained the society named in his honor, of the same institution, at his residence, March 24. Beside the society members Drs. W. Joseph Hearn, William W. Keen, Francis X. Dercum, Charles H. Frazier, John G. Clarke, William J. Spiller, Charles S. Potts, Charles S. Turnbull, John Marshall, Barton Cooke Hirst, William J. Pickett, James Hendrie Lloyd and John B. Deaver were present.

**Hospital Reports for March.**—Presbyterian Hospital admitted 195 patients to the wards and treated 2,199 in the different dispensaries.——Howard Hospital admitted 47 patients and treated 747 in the dispensaries, and prepared 3,558 prescriptions.——Charity Hospital treated 1,005 patients in the different dispensaries.——St. Agnes' Hospital admitted 184 new cases to the wards, treated 592 new cases and 2,750 old cases in the dispensaries.——St. Mary's Hospital admitted 179 new patients to the wards and treated 3,832 cases in the various dispensaries.

**Health Report.**—The total number of deaths reported for the week ended April 15 aggregated 517. This is an increase of 14 over those of last week and a decrease of 53 from the corresponding period of last year. There were 147 cases of typhoid fever reported, a decrease of 14 from those of last week. The principal causes of death were as follows: Typhoid fever, 21; diphtheria, 10; cerebrospinal meningitis, 3; pulmonary tuberculosis, 79; cancer, 21; apoplexy, 24; heart disease, 50; pneumonia, 52, and Bright's disease, 43. There were 246 cases of contagious disease reported, with 35 deaths, as compared with 280 cases and 42 deaths for the preceding week.

**Hospital Examinations.**—Examination for resident physicians at St. Mary's Hospital will be held in the hospital building, April 28, at 8 p. m.——Examination for internes at the Howard Hospital will be held May 16, in the hospital building, at 8 p. m.——Examination for resident physician at St. Timothy's Hospital will be held in the hospital, April 22, at 8:15 p. m.——The City Hospital of Williamsport, Pa., will hold its examination for resident physicians in the Y. M. C. A. Hall, Philadelphia, April 29, at 9 a. m.——A competitive examination for positions as resident physicians to the Jewish Hospital of Philadelphia will be held at the hospital, April 4, at 5 p. m.——A competitive examination for internes to the Mercy Hospital, Pittsburg, will be held in the medical laboratories of the University of Pennsylvania, Philadelphia, April 8, at 2 p. m.

**The Meningitis Situation.**—Reports from the Bureau of Health show that between January 1 and March 31, 40 cases of epidemic cerebrospinal meningitis occurred. Of this number 13, or 32.6 per cent., proved fatal. Of the 40 cases 8 occurred in four houses, that is to say, 2 cases to a house. From two of the houses the cases were reported on the same day. From the third house there was an interval of three days, and from the fourth house an interval of six days between the dates of the reports. There is a possibility, therefore, of a transmission of the disease in the cases of the last two houses. Beyond this there is little evidence of the direct transmission of the disease from person to person. The cases reported were scattered throughout the city, and not confined to any one section. Approximately 63 per cent. of the cases occurred in persons between the ages of 1 and 21 years. Only 2 cases were in children less than 1 year old.

**Appropriation for Hospitals.**—The following appropriation bills have finally passed: Samaritan Hospital, $130,000; Frankford Hospital, $60,000; American Oncologic Hospital, $150,000; St. Joseph's Hospital, $15,000; Philadelphia Polyclinic and College, $95,000; Jewish Hospital Association, $20,000; Kensington Hospital for Women, $10,000; Orthopedic Hospital, $35,000; German Hospital, $75,000; Rush Hospital for Consumptives, $20,000; Garrettson Hospital, $50,000; Wills Eye Hospital, $80,000; Mount Sinai Hospital, $15,000; St. Mary's Hospital, $27,000; trustees University of Pennsylvania for hospital, $175,000; Lying-in Charity Hospital, $15,000; St. Timothy's Hospital, Roxborough, $24,500; Howard Hospital for Incurables, $10,000; Free Hospital for Poor Consumptives, $100,000; Frederick Douglass Hospital, $12,000; St. Christopher's Hospital for Children, $15,000, and Maternity Hospital, $5,000.

## TEXAS.

**Physician Acquitted.**—Dr. Edward L. Fox, Houston, charged with causing the death of Anna Louise Lindley by a criminal operation, was acquitted March 29. The testimony showed that the death was due to tetanus, but not that it was superinduced by abortion.

**State Association Meeting.**—The thirty-seventh annual meeting of the State Medical Association of Texas will be held at Turner Hall, Houston, April 24 to 28. The house of delegates convenes April 24, and the general session April 25, at 9:30 a. m. A large number of scientific papers will be presented. At the opening meeting addresses of welcome will be delivered by Mayor Jackson and by Hon. C. R. Wharton of Houston. A rate of one fare plus 10 per cent. has been secured on all roads, good from April 21 to May 1.

**Many Medical Graduates.**—The Medical Department of Fort Worth University graduated a class of 21, April 6. Dr. W. Beverly West delivered the faculty address and President George H. MacAdam, D.D., delivered the university address and presented the diplomas.——Baylor University College of Medicine, Dallas, held its fifth annual commencement exercises April 4, when 24 applicants were awarded diplomas. Dr. Charles M. Rosser delivered the faculty address.——The cornerstone of the new Southwestern University Medical College, Dallas, was laid April 3, with appropriate ceremonies, and on the same evening the graduating exercises of the college were held, at which a class of 11 received diplomas. Rev. Alonzo Munk, Fort Worth, delivered the address.

## WASHINGTON.

**New Hospitals.**—Work has begun on the new Sacred Heart Hospital, Spokane, a six-story building, to cost $300,000.——The Roslyn and Cle Elum Hospital is under construction and will be completed by the middle of summer.

**The Physicians Won.**—In the damage suit of C. O. Peterson against Drs. George and Roy S. Wells, Northport, in which $10,000 was asked because of alleged malpractice while the plaintiff was a patient in the defendants' hospital, Judge Carey took the case from the jury and found for the defendants.

**Found Guilty.**—O. V. Lawson, Seattle, prosecuted by the King County Medical Association for practicing without a license, has been found guilty.——"Dr." Wong Him, Seattle, charged with a similar offense, who made the plea that he should not come up for examination because he was not familiar with English, was also found guilty as charged.

**Legislation.**—The legislature passed three bills of medical interest, one prohibiting formaldehyd in milk and one amending the medical practice act, raising the fees to $25, eliminating reciprocity and requiring a four-year course of study. The third was to prevent noxious lost-manhood and syphilis advertisements, but it was passed in a changed form and its power is not certain. It originally referred to "sexual" diseases; it was changed to read "venereal" diseases at the behest of patent medicine proprietors, assisted by all the newspapers except the Seattle *Post-Intelligencer*. Several osteopathic bills failed. *Northwest Medicine* remarks: "From a medical standpoint the recent session of the legislature is noticeable for what it failed to accomplish rather than for its acts passed. . . . The lesson to be drawn by the profession from this year's experience is the necessity of organization and of well laid plans for legislative action. The state association should determine on desirable legislation and, by having the same properly fathered, there would be a reasonable prospect of securing its passage. This will doubtless be a subject of future deliberation."

## GENERAL.

**Dr. Wiley Addresses the American Philosophical Society.**—Dr. H. W. Wiley, head of the Bureau of Chemistry of the Department of Agriculture, addressed the American Philosophical Society at its meeting in Philadelphia, April 13, on "The Effects on Metabolism of Preservatives Added to Food." Only the data concerning boric acid and borax were available for detailed discussion. The effect on the 12 persons experimented on was stated to be as follows: 1, to diminish or tend to diminish the weight of the body; 2, to diminish the activity of the appetite; 3, a tendency to diminish the per cent. of nitrogen excreted which slightly marked in a preservative period was even more marked in the after period, showing, therefore, the accumulative effect in this direction; 4, the development of the tendency to increase the excretion of phosphorus; 5, a tendency to increase to a slight extent the combustion of fat in the food; 6, a tendency to diminish slightly the total calories obtained from the food, and 7, a tendency to increase the quantity of solids in the food eliminated in feces. His work showed that nearly 80 per cent. of the total borax and boracic acid ingested in the food is excreted in the urine, and the rest apparently through the skin. The general result, he says, is a derangement of metabolic processes of a character tending to injure health.

**National Tuberculosis Association to Meet.**—The annual meeting of the National Association for the Study and Prevention of Tuberculosis will be held in Washington, May 18 and 19. Addresses will be made by the president, Dr. E. L. Trudeau, and by the two vice-presidents, Drs. William Osler of Baltimore, and Hermann M. Biggs of New York City, on the morning of May 18. In the evening an address will be made by Mr. Talcott Williams of Philadelphia, to be followed by the business meeting. The afternoon of May 18, and the morning and afternoon of May 19 will be given up to meetings of the three sections. The officers of the sections are as follows: Sociological—Homer Folks, New York, chairman; Miss Lilian Brandt, New York, secretary. Clinical and Climatological—Dr. Norman Bridge, Los Angeles, chairman; Dr. Sherman G. Bonney, Denver, secretary. Pathological and Bacteriological—Dr. M. P. Ravenel, Philadelphia, chairman; Dr. D. J. McCarthy, Philadelphia, secretary. The papers already announced promise an interesting and valuable series of meetings. The sociological section, in addition to the report by the chairman, will offer papers on "A Working Program for Associations for the Prevention of Tuberculosis, National, State and Local," by Edward T. Devine of New York; "Progress of the Sanatorium Movement in America," by William H. Baldwin of Washington, and "Infection in Transportation," by Dr. H. M. Bracken of St. Paul. The climatological and clinical program, in addition to the address of the chairman, includes a number of reports and papers of particular significance. The report of the committee on clinical nomenclature under the chairmanship of Dr. V. Y. Bowditch of Boston, will be discussed by Drs. Welch, Trudeau, Stengel and Vaughan. An authoritative pronouncement by a body of the authority of the national association is desirable. The report of the committee on early *diagnosis, under the chairmanship of* Dr. *Arnold* C. Klebs of Chicago, will be discussed by Drs. Osler, Janeway, Knight and Babcock. The rôle of climate in the management of tuberculosis is also the subject of a committee report by Dr. C. L. Minor of Asheville, the chairman. A symposium on the sanatorium treatment of consumption also promises matter of interest. Other papers are expected by Drs. C. L. Greene of St. Paul, William S. Halstead of Baltimore, C. F. Gardner of Colorado Springs, Edward O. Otis of Boston, S. A. Knopf of New York, J. A. Wilder of Denver, H. B. Loomis of New York and William Porter of St. Louis. The pathologic and bacteriologic section will be strictly technical in scope. An introductory address will be made by Dr. William H. Welch on "Channels of Infection in Tuberculosis." A large attendance is expected. The program will soon be completed and copies may be obtained of the secretary, Dr. Livingston Farrand, 105 East Twenty-second Street, New York.

## CANADA.

**Grants to Hospitals.**—The Winnipeg city council has made a grant of $10,000 to the Grace Hospital and Rescue Home of the Salvation Army of that city.——Toronto has contributed $2,000 to the Toronto Free Hospital for Consumptives, situated about 10 miles from that city and under the control of the National Sanitarium Association.——The new government of Ontario is likely to make a special grant of $25,000 to the Muskoka Free Hospital for Consumptives.

**British Columbia's Vital Statistics.**—The thirty-second annual report of the provincial registrar of births, deaths and marriages of British Columbia shows that during 1904 there were 2,139 births, 1,252 marriages and 1,734 deaths recorded in that province. Of the births 1,121 were boys, 1,018 girls. One hundred and forty-five deaths were due to zymotic diseases, 194 constitutional, 808 local, 267 development, 287 violent deaths; ill-defined, 15; natural causes, 9. Pneumonia claimed by far the greatest number of victims, namely, 104. There were 79 deaths from tuberculosis.

**Dr. Osler in Montreal, Ottawa and Toronto.**—Dr. Osler visited Montreal April 14, Ottawa April 15, and Toronto April 16. At Montreal he addressed the medical students of Montreal on "The Student In and Out of College." On the evening of the same day Dr. Osler was the guest of honor at the banquet of the medical faculty and the students of McGill University. The following day he was the guest of the governor-general at Ottawa, whence he came to Toronto for a hurried goodby to his friends before leaving for Buffalo and Baltimore. Several Toronto physicians will attend the dinner in Dr. Osler's honor at New York, May 2.

## FOREIGN.

**The Chrobak Endowment.**—Professor Chrobak of Vienna was recently presented by a group of ladies with $5,000 on his sixtieth birthday. He has endowed with it a fund for the promotion of scientific research in the Vienna gynecologic clinics.

**G. Mayer Festschrift.**—Dr. G. Mayer of Aix la Chapelle celebrated his eightieth birthday April 9. He is known as the discoverer of ankylostomiasis in miners, as well as by a number of other scientific works. He is the oldest living pupil of Virchow.

**Russian Physicians Captives in Japan.**—A Russian exchange states that the Russian physicians now prisoners in Japan have been appointed the medical attendants to the other Russian prisoners, and that they are to be paid by the Japanese government for their professional services.

**Cancer Research Committee in Bavaria.**—The mortality from cancer is exceptionally high in Bavaria, and a committee for special research has just been organized there. A local subcommittee has already been formed at Munich. It includes von Angerer, Bollinger, von Winkel and von Grashey.

**Institute for Physicotherapy at Heidelberg.**—A new university institute is to be installed at Heidelberg in connection with the medical polyclinic in charge of Vierordt. All kinds of electrotherapy, hydrotherapy, phototherapy, treatment by inhalation, sunbaths, *x*-rays and radium rays, etc., will be practiced and taught.

**Proposed Monument to Servet.**—Miguel Servet was a physician of Spanish birth who is said to have discovered the pulmonary circulation of the blood. He was burned at the stake in Genoa, Oct. 27, 1553, by the Inquisition and a committee has recently been organized to collect subscriptions to erect a monument to his memory.

**Visit of von Noorden to New York and Chicago.**—The Herter lectures are to be delivered at New York this season by Professor von Noorden of Frankfurt a. M. His theme will be "Disturbances in Metabolism," with special reference to diabetes. He will also speak on "Gout and Nephritis" at Chicago, on invitation of Professor Billings.

**Plague in Chili.**—The *Public Health Reports* state that the government has ordered the closing of the large schools and has put in force many measures to prevent the introduction of plague in Santiago. The intensity of the epidemic in Pisaqua has somewhat diminished, though a dispatch dated March 14 states that the population is greatly reduced.

**Vaccination-Gambling Alliance.**—It is reported that the alcalde of Madrid, in order to overcome the repugnance of the populace to vaccination, has organized a lottery, the tickets to be distributed free to all applying for vaccination at the city health office. He has given 3,000 pesetas (about $600) out of his own pocket to be distributed in the prizes.

**The Berlin Children's Sanatorium.**—An institution is opened this month, not far from Berlin, to serve as a country sanatorium for weakly children under school age and convalescents of any age. Bedridden and febrile cases are excluded. There are accommodations for 24, and Dr. H. Neumann is supervising physician. The institution is expected to be partially self-supporting.

**Falling Off in Number of Physicians Licensed in Germany.**—The number of "approbations" in the German empire has dropped from 1,562 in 1902-03 to 1,056 in 1903-04. This is the smallest number of physicians licensed in one year since 1886. The number of dentists has also dropped from 162 to 147, and of pharmacists from 37 to 23. The list of licensed physicians includes 11 medical women, and there are 2 women dentists.

**Student Riots in Paris.**—Again the medical school at Paris has had to be temporarily closed to put an end to the "manifestations" of the students. They rebelled against the severity of certain examinations and proceeded to the home of Professor Gariel in a turbulent crowd. The superintendent of police struck one of the students in his face with a cane and the Latin Quarter was in a ferment. The prefect of police apologized on behalf of the superintendent and published his apology in all the dailies.

**Destruction of Medical College at Bahia, Brazil.**—The medical college, with all its equipment and valuable library, was almost totally destroyed by fire in March. The building used to be a Jesuit monastery, but had been conveniently fitted up for the medical school. The loss of the reference books and numbers of rare works of the early masters and files of medical journals is irreparable, but the government is already taking steps to replace the building and to equip it with modern appliances. The official medical journal published there, the *Gazeta Medica da Bahia*, was founded in 1866 and is now in its thirty-seventh volume.

**Smallpox in Sierra Leone.**—An outbreak in smallpox is reported from Sierra Leone. The *Public Health Reports* state that the authorities seem to have the situation well in hand. The disease is confined principally to the suburban settlements, the central portion of the city, in which are the principal business and government offices and consulates, being unaffected. The disease seems to have been introduced into the city and colony from the interior by means of the railroad. Some persons have been convicted of concealing cases from the health authorities and in this way the disease was firmly established before its presence was detected.

**Lead Poisoning in France.**—The discussion in the French senate on legislation prohibiting the use of white lead has brought out the fact that the number of cases of lead poisoning among painters is growing less every year. There are about 25,000 to 30,000 painters at Paris, and during the last ten years an average of 200 have been under treatment for lead poisoning in some form, almost invariably mild. During this period 13 painters have died in the hospitals of lead poisoning. About ten deaths from this cause occur annually in the city. These figures were supplied by A. Gautier, who has been connected with the Seine department of health for twenty-five years.

**Centennial of Discovery of Morphin.**—On March 20 the little German town of Hameln (Hamelin) in Hanover, witnessed a notable gathering of pharmacists and chemists to celebrate the hundredth anniversary of the discovery of morphin. They gathered around the building in the Osterstrasse in which the famous Sertürner, the discoverer of morphin, had his pharmacy for twenty years before his death. Among other ceremonies a memorial tablet was placed on the building in the name of the German association of pharmacists. Hamelin will also be remembered as the scene of the colossal suggestion or hypnotic suasion of the "pied piper of Hamelin," after the townspeople had refused to pay his promised fee for delivering the town from rats.

**Incomes of German Physicians.**—The official statistics recently published state that there are 3,956 physicians in the Brandenburg district, which includes Berlin and Charlottenburg. Among the 2,060 physicians of Berlin 54 have an income of only 900 to 1,050 marks, or about $225 to $262; 261 have less than $522, and 206 less than $725. These 521 physicians form about 26 per cent. of the total. In Charlottenburg the proportion is less than 21 per cent., but in Rixdorf it is 46 per cent. About 200 physicians in Berlin have incomes of from $725 to $1.050. The number of Berlin physicians with incomes over $1,250 is said to be 994. This group includes the chief luminaries of the profession, one being listed with an income of $82.500, and seven others with incomes of over $40,000.

**Prizes Offered for Works on Lead Poisoning.**—The International Association for Protection of Working People offers a dozen prizes for the best works on the prevention of lead poisoning. The first prize is $1,250, to be given for the best work on the means to prevent lead poisoning in handling ores containing lead. The second prize is $2,500 for the best work on means to avoid the dangers from lead in lead mines. Two prizes of about $500 each are offered for works on means to avoid the danger of lead poisoning in paint factories, storage battery works, etc., also four prizes of from $187 to $375 for the best works on the same subject applied to painters, varnishers, etc., and four similar prizes for works in regard to printers, type founders, etc. Competing articles should be sent to the "Secretariat der internationalen Vereinigung für Arbeiterschutz," at Basle, Switzerland, before December, 1906. Further information on request at this address.

**Third German Preventive Congress.**—This congress will be held next year at Mannheim or Königsberg (both cities are competing for the gathering). The question of "Sexual Pedagogics" is to be the main theme discussed, and a committee has been appointed to study the subject. The congress which has just closed its sessions was described in these columns on page 1207. Later reports state that the members of the congress unanimously agreed in respect to non-interference with advertising of measures to prevent contracting venereal disease. Neustätter of Munich and Bernhard and Lesser of Berlin stated that these measures can not be absolutely advised against. The advertising, however, should be restricted to proper limits. It should be expressly stated in the official regulations that measures to protect against the contracting of venereal disease do not come under the heading of articles prohibited on account of being destined to obscene purposes. Neustätter proposed that an official preventive censorship should be established for all advertising of protecting measures, medicines, etc. It was reported at the congress that a million copies of the preventive circular had been distributed to young men throughout Germany. A similar circular to be given to girls and women is now being prepared, and collective inquiries on questions in this branch of scientific work are to be undertaken. The preventive circular referred to above was mentioned in these columns on page 564 of volume XLI.

**Damage Suit Against Vulpius.**—Prof. O. Vulpius, the well-known orthopedist of Heidelberg, recently operated on a young man whose right knee was ankylosed at an acute angle. There was also a tumor on the inside of the leg, above the knee. Vulpius told him, it is said, that the knee could be straightened by a simple and harmless operation, and that he could return home in eight to ten days. Vulpius severed the flexor tendons behind the knee and divided the femur above, and placed the leg in a padded plaster cast in extension. The tumor was not removed and no hole was left for it in the cast, but the toes projected from the cast. In the course of twenty-four hours they became discolored, with loss of sensibility, as Vulpius determined himself by pricking with a needle. He made no change in the dressings and left town, leaving the further care of the case to his assistant. The leg became more and more painful and by the twelfth day the toes were blue and swollen, with fever. The assistant finally yielded to the patient's entreaties and removed the cast. The foot and leg were found gangrenous, and on the twenty-eighth day Vulpius—who had returned in the meanwhile—amputated the leg. The patient left the clinic after a three months' stay and instituted proceedings against Vulpius. He demanded that Vulpius should provide him with an artificial leg and pay him a yearly pension of $125 in quarterly installments and also a cash indemnity of $3,000. The local court decided in favor of the plaintiff, and appeal to the supreme court resulted in a confirmation of the verdict.

## LONDON LETTER.

### Plague in India.

The deaths from plague in India having reached the appalling total of over 1,000,000 per annum, the government has appointed an advisory committee for plague investigation. This committee has been constituted by the India Office, the Royal Society and the Lister Institute. It has for its object not the question of the administration of plague work, but the study of the bacteriology of the disease. The chairman of the committee is Surgeon-General Branfoot, president of the medical board of the India Office. The other members are Sir Michael Foster and Dr. J. Rose Bradford (nominated by the Royal Society); Colonel David Bruce and Dr. C. J. Martin (nominated by the Lister Institute). Dr. Martin has already sailed for India and is due to reach Bombay on April 14. He will then make arrangements for laboratory accommodation, etc. On receipt of information from him two bacteriologists will probably be sent out from England in a few weeks' time. Two members of the Indian Medical Service have also been lent by the Indian government for the work in India. The officers will probably travel over the plague area, and the headquarters of the committee will probably be the Pasteur Institute at Kassauli.

### Ambidexterity in Art.

The second of the series of lectures arranged by the Ambidextral Cultural Society was delivered by Sir William Richmond. He referred to the extraordinary feat performed by Sir Edward Landseer, who drew the profile of a stag's head with its antlers complete with one hand while with the other he outlined the profile of a horse. Ambidexterity was taught to the Spartans, who were compelled to use the sword, the shield and the spear equally well with either hand. To educate the left hand requires perseverance. As examples of what can be done by perseverance two cases were mentioned. A congenitally armless painter copied the colossal picture of Reubens, "The Descent from the Cross," with his feet alone. A young man paralyzed in all his limbs learned to draw and even to engrave on copper, using his lips, teeth and tongue. A copy of Albert Durer's "Man of Sorrows," engraved in this astonishing manner, was handed round, and those present who were acquainted with the original pronounced the copy to be a perfect replica. The ambidexterity of Leonardo da Vinci was then referred to and it was shown to what a large extent in various handicrafts the Italians of to-day use the left hand, this being a survival of ancient custom. The lecturer concluded that the work of the society was of great importance and thought that a deputation should wait on the Board of Education to urge the adoption of its views in schools. The lecture was illustrated by drawings showing the difficulty of using the left hand without previous training, much amusement being caused by the lecturer's sketch made with both hands simultaneously portraying a figure holding a stick, made with the right hand, and one holding a cigar, made with the left.

## Pharmacology

### FURTHER COMMENTS QUOTED.

We quote below some expressions of opinion from various publications which discuss the general subject of secret nostrums and the plan of the Council on Pharmacy and Chemistry:

JOURNAL OF THE MEDICAL SOCIETY OF NEW JERSEY: "We hope that every physician in our state will read, mark, learn and inwardly digest this report. . . . To our mind there can be no doubt of the issue of this vexed and troublesome question if the editor of THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION and the editors of the state journals stand firmly on the ground laid out for them and scrupulously adhere to the excellent code of rules we have referred to."

WESTERN DRUGGIST (March): "The American Medical Association has finally undertaken a work which for many years engaged the serious attention of the American Pharmaceutical Association, but whether or not it will not meet with better success remains to be seen. . . . It is exceedingly doubtful if the proprietors will deliberately comply with this request, even though they have been accustomed heretofore to publish essentially the ingredients of their respective preparations, for the reason that the recognition by them of the principle of censorship would logically lead to enforced compliance with any further conditions now or hereafter to be imposed by the council. The 'community of interest' among the manufacturers will certainly prompt them to view with suspicion the creation of an official outside authority over their products and, knowing that unless the more popular preparations now in use by the profession shall place themselves under the council's censorship the entire scheme must of necessity fall through, they will be slow about entering the seductive little parlor of the council. . . . Few manufacturers, we imagine, will deliberately tie themselves up to perpetual accountability to a group of critics who may or may not be governed at all times by infallible intelligence or by recognized principles of mercantile equity."

MEDICAL NEWS, N. Y. (March 18): "There was a time in the history of medicine when the physician was chemist, botanist, pharmacist and healer. But that was many, many years ago. Since that time social relations have become very complex, but none more so than the relations of pharmacy to medicine.

"From time to time certain features that concern the medical profession very closely have received no small amount of criticism on the part of reformers, and sporadic attempts have been made to adjust certain questions which have been deemed prejudicial to the best interests of medicine. One of these problems has concerned the ethical stand that the profession, as a whole, should adopt toward the exploitation of proprietary remedies. At first sight it seems an easy problem to solve, but in reality it has shown itself to be one of extreme difficulty to grasp in its entirety. A beginning, however, has to be made, and the most radical step that has thus far been contemplated has been recently outlined by THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION (March 4, 1905). Writing on 'The Secret Nostrum vs. the Ethical Proprietary Preparation,' it plunges at once into one side of the subject with a courage that deserves praise and an insight that commands the highest respect for its intelligent grasp of an intricate social question.

"That we as practicing physicians need light there is not the slightest doubt, and we welcome most heartily the effort on the part of THE JOURNAL to pull our chestnuts out of the ethical fire."

WISCONSIN MEDICAL JOURNAL (March): "The Council on Pharmacy and Chemistry of the American Medical Association, which is composed of some of the best known chemists and pharmacologists of this country, is about to make an effort to solve the vexed problem of separating the wheat from the chaff among the many non-official pharmaceutical preparations placed on the market. . . . The plan outlined by this council will doubtless prove of very great service to the entire profession."

### Misleading Statements Concerning Proprietary Remedies.

The article of Dr. Roth[1] on clay mixture poultices should serve to call attention to a widespread evil—the misleading statements in the "literature," distributed so generously by the manufacturers of proprietary products. It is an evil which is much more general than is commonly appreciated. Some of these misstatements are absurd on their face—such as the claim "to cure tuberculosis," the claim that a mushroom product is the "standard" of its kind, etc. Such statements should deceive no one; they should be recognized as an insult to our intelligence. Others, however, are invested with a veil of pseudo-scientific plausibility. These do by far the greater harm, for it is not always easy to perceive the wolf under the sheepskin. The published formulas of the clay mixture referred to in Dr. Roth's paper would lead one to believe that its efficiency depended largely on the essential oils or on the added antiseptics. These, however, are present in such infinitesimally small quantities that they can play but a very unimportant part in the action of the mixture when applied to the unbroken skin. The base, clay or kaolin, is also suggested as an important constituent of the mixture, but even this, apart from its mechanical action, does not constitute an essential part of the mixture. As any quality of clay will answer equally as well, it will be readily seen that there can be no specific therapeutic property in the clay used by any one firm. The most important constituent of the mixture, and the one on which its action largely depends, is anhydrous glycerin, or a glycerin that is as nearly anhydrous as possible. The glycerin in these mixtures is not added "to give the kaolin or white clay its thick jelly-like consistency," but is added for a definite purpose. It has long been known that *glycerin*, as such, is irritating when applied to the skin; this irritating action is due to the hygroscopic nature of this substance, or "the avidity with which it abstracts moisture from the tissues." While this action of glycerin has been recognized, and is made use of in other directions, its oversight in connection with the widely advertised clay mixtures well illustrates how little proprietary medicines really contribute to the progress of rational, scientific therapeutics.

The clay poultice, however, is not the only offender. There are many, many others—although in some the error is not so palpable. Dr. Roth's investigations, however, should serve to enlighten those who obtain their knowledge of materia medica and therapeutics from the manufacturers of proprietary remedies, and should warn the profession generally against an unquestioning acceptance of manufacturers' claims.

We believe that the condition would soon be remedied if those who encounter misleading advertisements would protest to the manufacturers. We fear, however, that few will take the trouble. A reform could be brought about most readily if the manufacturers themselves would take the initiative. We may be optimistic, but we trust that these misleading claims are made through carelessness; and we respectfully urge the manufacturers to be a little more conservative in their statements. This would be to their own interest. The houses which have not offended in this respect have always been the most prosperous. Let the products stand on their real merits. Clay poultices may be excellent things in their place, but extravagant claims will injure, not enhance, their permanent reputation.

### "Patent" vs. Proprietary Medicines.

The avowed intention of several of the largest and most influential manufacturers of so-called patent medicines to

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1. THE JOURNAL, April 15, p. 1185.

publish the, supposedly correct, formulas for their several preparations will prove of considerable assistance to the Council on Pharmacy and Chemistry of the American Medical Association in the prosecution of their proposed task of segregating the meritorious from the doubtful or positively objectionable proprietary preparations that are offered to, or exploited through, the medical profession. The direct gain, in this connection, consists in the breaking down of any possible suggestion of difference between the standing of a so-called proprietary medicine, for which the manufacturer publishes an erroneous and frequently misleading formula, and the standing of a patent medicine, or popular nostrum, the composition of which is usually regarded as the absolute secret of the manufacturer. Few physicians appear to appreciate how closely related many of these proprietary preparations really are to the admittedly vicious and frequently harmful nostrums that are exploited directly to the lay public. Lay people themselves are much more likely to see and to appreciate this relationship than physicians. That this is true is evidenced by the extensive use of many of the present-day proprietary medicines by the laity and also by the fact that a number of the best selling and most remunerative patent medicines of to-day were originally advertised to and exploited through the medical profession. The letters contributed by honest and well-meaning physicians, one, two or three decades ago, recommending the use of a proprietary medicine are published now in the patent medicine almanacs as evidence that the particular remedy has been used and recommended by medical practitioners. The compounds, elixirs, tonics, syrups and balsams of a quarter of a century ago are being reproduced to-day in the fantastically named preparations that are exploited through, and are used and recommended by, members of the medical profession only to be taken up later and sold directly to the laity for self-medication.

# *Correspondence*

## Malpractice Insurance and Medical Defense.

FORT WAYNE, IND., April 11, 1905.

*To the Editor:*—In THE JOURNAL, April 1, 1905, is an editorial commenting on the recent opinion of Attorney-General Mullan of Iowa in which he held that "physicians can not take out insurance in that state against malpractice suits." You state that "considering the fact that probably nine-tenths of all malpractice suits are pure blackmail, instigated by quacks and foraging lawyers, the finding seems to be a peculiar one." The opinion does not seem to us a peculiar one. It is the only rational opinion which could have been rendered, and but confirms the opinions of attorneys general of a number of other states.

The "physicians' liability policies" issued by casualty insurance companies purport to defend any malpractice suit brought against the policy holder, and in the event of a judgment being rendered against the physician, to pay the same within the limits provided in the policy. This indemnity feature of the insurance contract makes it against public policy. The policies are written and the subject is treated by the insurance company as an "accident." It is through this misapprehension of the subject that the insurance companies began the issuance of such policies.

Malpractice is not an "accident." The courts have held: "An *accident* is defined as a happening of an event without the aid and design of a person and which is unforeseen, and in this sense the word is to be understood in the absence of a plain, unequivocal exemption and provisions, in a policy insuring against injury or death caused by accidental means." Malpractice is the "bad professional treatment of disease, pregnancy or bodily injury, from reprehensible ignorance or carelessness, or with criminal intent."

If a physician charged with malpractice can show that the injury complained of was the result of an accident, a result not to be expected and for which, therefore, he could not prepare, or, if possessing the requisite qualifications and applying his skill and judgment with ordinary care and diligence, an honest mistake or error of judgment occurred, he can not be held liable, be the results what they may. The medical practitioner is not an insurer or a guarantor of results. All that he is required to do is to bring to his assistance the ordinary knowledge, learning and skill possessed by the average practitioner in similar localities and to exercise his best judgment. If, however, he is incompetent, and does not possess the ordinary knowledge and skill of the average practitioner, or if he is negligent or unskillful in rendering his services, or fails to exercise his best judgment and injury results, he can be held responsible in damages.

Indemnity, therefore, is not a protection to the reputable, competent and careful practitioner. Possessing the requisite knowledge and skill, applying his skill and judgment with ordinary care and diligence, he can not be held liable for any untoward results. What he does need when assailed by the blackmailer under the guise of malpractice is a vigorous and competent defense which will vindicate his diagnosis, treatment and work. For the negligent, incompetent, unskillful and quackish practitioner, indemnity is a *multum in parvo.* Having no professional reputation at stake and practicing strictly for the money there is in it, he will undertake to render services for which he is incompetent and unprepared, will guarantee results and can even neglect with impunity his patients, relying on the insurance company to pay the bill.

The state holds as its most valued possession the health of its citizens, and anything which will have a tendency to relieve one from responsibility imposed by common law or statute in the treatment of disease or injury, is against public policy. Organized defense is recognized as not being against public policy, but as a necessity for reputable practitioners. This fact is shown in the admission and authorization of the Physicians' Defense Company as a foreign corporation in Iowa. Before this company received its certificate of authority from the secretary of state of Iowa, the attorney general reviewed its charter and the defense contracts which it issues, and rendered his opinion that the company is not an insurance company, that its contracts are not insurance policies, and that it could be admitted as a foreign corporation and that its contracts for the defense of physicians, surgeons and dentists are legal contracts under the laws of Iowa.

From the foregoing it is clear that while Attorney-General Mullan's opinion holds the issuance of "physicians' liability policies" to be illegal under the law on account of the payment of judgments, yet the state is not opposed to organized defense.

E. H. MERRITT.

## History of Medical Organization.

BURLINGTON, IOWA, April 16, 1905.

*To the Editor:*—In "An Epitome of the History of Medical Organization in the United States," published in THE JOURNAL, April 15, I note a statement concerning Iowa which may be misleading and I ask space for this, a more explicit account.

Section 4954 of the revised statutes of Iowa (code of 1897) is the "nasty ad." law referred to. It is almost identical in language with section 5337 of the code of 1880. Whether the Iowa State Medical Society was instrumental in having this law made I can not say, because I was not a member until 1880. Some of the older men may be able to tell you, but that the members generally were ignorant of its existence can be seen by reference to the October and December, 1903, issues of the *Iowa Medical Journal.* In the latter I have a letter on this subject, in reply to an editorial entitled "As Others See Us."

That there have been violations of this law there can be no doubt, but I have yet to hear of an attempt to enforce it.

Membership in the Iowa State Medical Society prior to 1903 was acquired only through membership in an affiliated county or district society. Of the former there were in 1897 sixteen listed as having made official reports of conditions; of the latter, eight. There were other societies of both kinds, some

of them large and active, as, for example, the Des Moines Valley. The district societies embraced many counties not individually organized, and thus the ground was well covered; so it is not impossible that the increased membership of to-day comes more from the "drumming up" process, which I vainly urged in 1893, than from lack of facilities. Iowa, as Dr. Hobby pointed out to you last year, has for years been largely represented in the American Medical Association meetings, second to very few, and this of itself should be sufficient answer to the critic.
H. B. Young.

### Cerebrospinal Meningitis in Animals and in Man.

Humboldt, Tenn., April 8, 1905.

*To the Editor:*—I have just read Dr. Albert's letter in The Journal, April 8, p. 1132, on the identity of meningitis in animals and man. This is an interesting and important subject, especially as the question of contagion is beginning to receive the attention it should have had long ago. I am not familar with the disease in the cow, but I have seen a few cases in man and in horses and have long been impressed with the idea that the disease is the same in both. The disease in the horse is known in this locality as "blind staggers" and there is a popular impression that the horse contracts the disease from eating the "chaff" of old corn, and as it is undoubtedly more common about the time the farmers are cleaning out the corn-cribs preparatory to housing the new crop, it may not be unlikely that the dust inhaled in eating the "chaff" contains the germs; and, again, it may not be going too far to suppose that the germs are deposited in the dust by the rats, to the gnawing of which the "chaff" is mainly due. However this may be, if the unity of the disease is established, it may account for some of the heretofore unaccountable sporadic cases in man, and may help solve the problem of prophylaxis. This is merely a suggestion and is offered for what it is worth.
Sidney Thompson, M.D.

## Association News

### ROUTES TO THE PORTLAND MEETING.

### Sketch of the Western Country and the Various Routes By Which to See Its Beauties.

All railroads will lead to Portland, Ore., for the coming session of the American Medical Association, on account of the Lewis and Clark Exposition that opens there June 1; and, therefore, a choice of routes will be available such as is not often possible, with side-trips and stop-over privileges practically according to each traveler's inclinations.

For the purposes of this article, we may class the various routes to Portland as direct and indirect, the former being all those on which the short-line rate will prevail, the indirect those which will carry the traveler a round-about route but at an additional railway fare. The latter, for example, permit the passenger for Portland to travel through California either going or returning, the other part of the trip to be by one of the direct lines. The principal routes are shown on the accompanying map.

By the direct routes, Chicago, St. Louis and Memphis passengers for Portland, or parties from points in the East or South ticketed through either of these three gateways, may, at their option, be routed through St. Paul and Minneapolis and thence to Portland via either the Canadian Pacific, the Great Northern or the Northern Pacific railways; or through Omaha or Kansas City, thence through Denver or Cheyenne and Salt Lake City, thence via Ogden, Utah, and Pocatello, Idaho (not via California from Ogden); or through Omaha or Kansas City and thence via Billings, Mont.

Without extra fare, the western or outgoing trip may be made by any of these so-called direct routes and the return by the same or any other of the direct routes; or one way may be by one of the indirect routes, as said above, by paying an additional charge, but the desired route must be determined on before buying the ticket so that the latter may be made out accordingly.

#### DIRECT ROUTES VIA ST. PAUL.

Tickets may be routed over any one of the lines between Chicago and St. Paul at the passenger's option, these being the Northwestern Line; the Chicago, Milwaukee and St. Paul; the Chicago, Burlington and Quincy; the Wisconsin Central; the Chicago, Rock Island and Pacific; the Illinois Central, and the Chicago Great Western. Any of these offer satisfactory service and picturesque scenery. After reaching St. Paul the traveler via this gateway has choice of but three routes from there to Portland, the Great Northern, the Northern Pacific or the Canadian Pacific, some of the advantages of these lines being given below:

*The Great Northern Railway*, which lies nearest the northern boundary of the United States, takes first a northwesterly direction from St. Paul, along the west bank of the Mississippi River, across the lake region of Minnesota, which offers some of the finest fishing grounds in this country, then up the famous Red River Valley to Grand Forks, N. D., whence the line takes a more westerly course across the agricultural and stock sections of northern North Dakota and Montana to the Rocky Mountains. Thence is afforded a continuous panorama of grand and magnificent scenery through northwestern Montana, where, at an altitude of only 5,199 feet, the range is crossed, the route then being across northern Idaho to Spokane, Wash., whence it proceeds west via the far-famed irrigation sections of that state—the Great Bend Country and the Wenatchee Valley—crossing the Columbia River at Wenatchee, to traverse the famous Tumwater Canyon and on through timber and lumber sections across the Cascade Range to Everett, where Puget Sound is reached. Here the line turns south and parallels the sound to Seattle. In the Rocky or Cascade mountains, various points afford excellent hunting and fishing stop-overs. The famous Kootenai Lake region and the mining sections of Rossland and Nelson, B. C., may be reached from Spokane; the noted Lake McDonald country and its glaciers, from Belton, Mont., and beautiful Lake Chelan and the Methow Valley from Wenatchee, Wash.

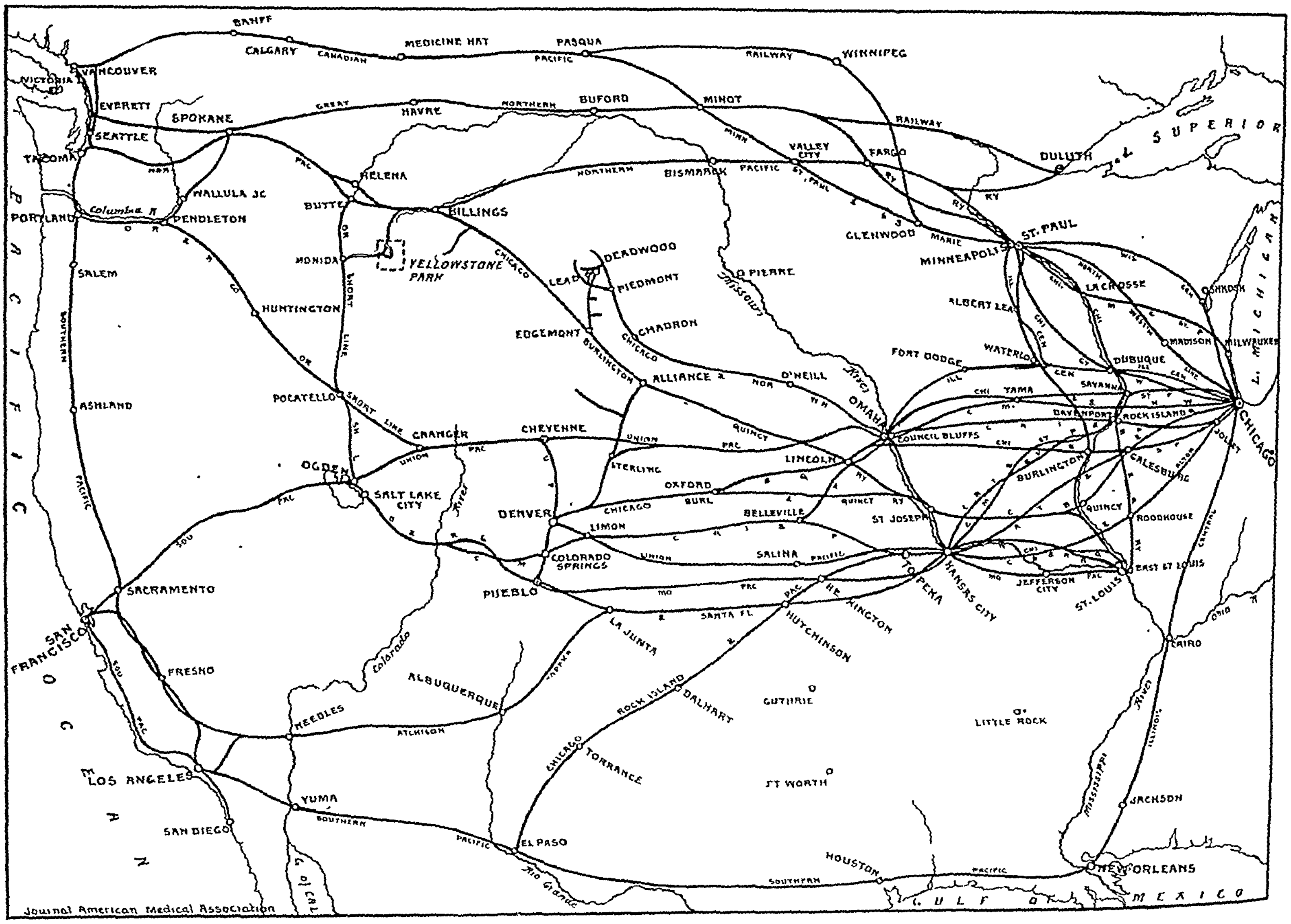
*The Northern Pacific Railway*, paralleling in general direction the Great Northern, between St. Paul and Puget Sound, enters North Dakota at Fargo, keeping thence nearer the southern line of the state, crossing the noted "Bad Lands" and following the Yellowstone River in Montana to Livingston. Then, via Butte or Helena, at the passenger's option, it crosses the famous Bitter Root Valley and the Flathead country and the mountain and lake region of northern Idaho to Spokane—a continuous stretch of magnificent scenery from Livingston west. From Spokane, this line takes a southwesterly direction through southeastern Washington's agricultural sections and across the far-famed Yakima Valley, where it turns northwest to climb the Cascade Range and to traverse—before reaching Seattle to turn south to Portland—some of the most extensive and interesting timber and lumber sections of the Northwest. Here may be seen the lumber industry at its best, and here, too, are hunting and fishing regions easy of access and unsurpassed, while Spokane offers many inducements as a stop-over point, with the hunting and fishing sections of northern Idaho most easily reached therefrom. From Livingston, Mont., over a branch line to Gardiner, is made the side trip to the Yellowstone National Park, whose wonders and scenic attractions will many times repay for the time spent and the additional expense incurred in making the five and one-half day tour through it.

*The Canadian Pacific* has as grand mountain scenery as is to be found anywhere in the world, unapproachable in magnificence and majesty, and for two days are to be seen panoramic views of mighty mountains, wonderful cascades, great glaciers, and awe-inspiring canyons. The pleasures of the trip will be greatly enhanced by stop-overs at Banff, in the Canadian National Park; at Lake Louise, one of the most charming lakes in the world; at Field, the entrance to Yoho Valley; and at Glacier, where is located the Great Glacier of the Selkirks, larger than all the glaciers of Switzerland combined. By this route passengers are given the option of traveling through Puget Sound without extra cost if a water trip is preferred to all rail.

### DIRECT ROUTES VIA OMAHA.

The railway lines that connect Chicago and St. Paul, noted above, also operate between Chicago and Omaha, each offering excellent service. Two, the Burlington and the Rock Island, have their own tracks from Chicago to Denver. and the Burlington also offers its own line to Billings, Mont., from which point its trains run to Seattle over the Northern Pacific Railway. The Chicago, Union Pacific and Northwestern Line has a daily service direct from Chicago to Portland without change.

Passengers using any other of the Chicago-Omaha lines may be ticketed to travel via any of the lines west from Omaha, at their option, these lines being the Burlington, the Rock Island and the Union Pacific. Each of these affords excellent service between Omaha and Portland via Denver and Salt Lake City, via Denver and Cheyenne and Salt Lake City, or via Cheyenne direct (main line of Union Pacific); or via Billings, Mont. From Denver to Portland the passenger has the further choice of traveling to Portland via either the Denver and Rio Grande, the Colorado Midland or the Union Pacific, via Salt Lake City, Ogden and Idaho. A few of the special points of interest along these three lines are mentioned below:



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*The Union Pacific* makes especial boast of fine trains and fast time. By this route's main line from Omaha one crosses from the range sections of western Nebraska into southern Wyoming, where at Cheyenne the Denver portion of the train is added. Then the line continues westward near the Colorado-Wyoming boundary, crossing into Idaho, to traverse, beyond Pocatello, some of the most extensive irrigation sections in this country. Shoshone or Boise are good points for stopovers for study of these systems, and from the former the Thunder Mountain country may be visited. Portland passengers on the Union Pacific may travel via Ogden, between Granger, Wyo., and Pocatello, Idaho, to visit Salt Lake City, and free tickets from Ogden to this Mormon center are furnished. From either Ogden or Pocatello a side trip may be made to the Yellowstone National Park, the stage trip by this route through the park being made from Monida, near its western boundary. From Umatilla, Ore., this route follows the Columbia River into Portland, affording a scenic panorama of crags, mountains, gorges and rivers that probably has few if any equals; and from the Dalles passengers may make the remainder of the trip down the river by steamer, though the train parallels it. From Hood River, snow-capped Mt. Hood is easily reached, with its unsurpassed opportunities for hunting, fishing and mountain climbing.

*The Denver and Rio Grande Railway*, between Denver and Ogden, offers mountain scenery that is unsurpassed anywhere in the United States. Extending south from Denver through Colorado Springs to Pueblo, paralleling the Rocky Mountains, it then follows the Arkansas River in a northwesterly direction, to enter the mountains through the far-famed Royal Gorge, whose perpendicular sides tower 2,700 feet above the river and roadbed which crowd each other in this narrow defile that has no scenic equal. A stop at Canon City, the heart of one of Colorado's fruit valleys. will be repaid in a drive to the top of the Royal Gorge. From Salida to Grand Junction, optional routes are offered by this line, one over Marshall Pass, the other, the main line, through Leadville and over Tennessee Pass, where the line crosses the range at an elevation of 10,243 feet, thence follows the Canyon of the Grand River through Glenwood Hot Springs and on to Salt Lake City and Ogden. From Ogden the Portland equipment is carried on Union Pacific trains, via Pocatello, Idaho, as outlined above for that road.

*The Colorado Midland Railway*, the other route offered through Colorado, parallels the Rockies to Colorado Springs and Manitou, where its westward climb is begun via Ute Pass. Stop-overs at either of these points, for the trip up Pike's Peak by the famous cog railway, will give wonderful scenic views, while the trip to the Cripple Creek district, made by the short line from Colorado Springs, is said to have no scenic equal anywhere. From Divide, on the Midland, the Cripple Creek district may also be visited before continuing westward over Hagerman Pass, past the Collegiate Range and Glenwood, beyond which the Midland and the Rio Grande routes traverse the same country, through Salt Lake City to Ogden. Glenwood offers much of interest to the physician, by reason of its hot springs, vapor caves, etc., and it is, besides, a convenient starting point for hunting and fishing trips into Colorado's well-known game sections. Colorado Midland equipment for Portland is also carried, beyond Ogden, on Union Pacific trains, through Idaho.

### DIRECT ROUTES VIA KANSAS CITY OR ST. JOSEPH.

Between St. Louis and Kansas City or St. Joseph similarly excellent service to that via St. Paul or Omaha is offered by the following lines: Chicago and Alton; Chicago, Burlington and Quincy; Missouri Pacific; Chicago, Rock Island and Pacific, and the Wabash.

Between Chicago and Kansas City the same lines operate—except the Missouri Pacific—and in addition the Santa Fe, the Chicago, Milwaukee and St. Paul, and the Chicago Great Western.

From either point Portland passengers may travel via the Kansas City or St. Joseph gateway, if preferred, then through Denver, Salt Lake City and Ogden, Cheyenne and Ogden, or through Billings. Such routings will be, beyond Denver, by one of the lines noted above under Omaha routings through Denver, etc. Salt Lake City and the Great Salt Lake, aside from its interest as the center of Mormonism, will prove one of the most interesting of the stop-overs available to those traveling to Portland via Denver, either of the three lines between Denver and Portland carrying passengers via this city. For that portion of the journey between Kansas City and Colorado, one has choice between the Burlington, the Rock Island, the Santa Fe, the Missouri Pacific and the Union Pacific, the first three having their own lines from Chicago to Denver via Kansas City, the first two and the Missouri Pacific their own lines from St. Louis to Denver via Kansas City.

### DIRECT ROUTES VIA BILLINGS, MONT.

The Burlington Route operates through trains between St. Louis and Seattle, with connections at Lincoln, Neb., from Chicago and Omaha, and at St. Joseph from Kansas City. West of Billings these trains use the Northern Pacific track to Seattle. On this route the famous gold mining sections of the Black Hills may be visited by a side trip from Edgemont, S. D., and the Big Horn Basin from Toluca, Mont. The Custer Battlefield is crossed near Billings, and west of that city the points of interest are those mentioned for the Northern Pacific.

### INDIRECT ROUTES.

These are the routes by which the Portland passenger is carried through California either on the outgoing or on the return portion of the trip, an extra fare being charged therefor, with the requirement that the other portion of the trip shall be by one of the direct routes. As the majority of physicians in attendance on the Association session will doubtless make the return portion of the trip by the indirect routes, if at all, these are taken up here with Portland as their starting point rather than their terminal. But, as exposition tickets will be on sale late in May and also in June, with a 90-day limit, physicians who prefer to start in advance of the meeting time and to use one of the indirect routes on the going trip, will be able to do so, the only requirement as to the ticket's limit being that the return to starting point be in 90 days from date of starting.

All the indirect routes lead through California, and may be by boat or rail between Portland and San Francisco; and from the latter city the route may be eastward across Nevada and through Ogden, thence via any of the lines mentioned under direct routes, to destination; or from San Francisco the ticket may read via southern California, and to destination by any of the southern lines, as noted below.

*The Southern Pacific*, the only rail route from Portland to California, offers some of the most magnificent scenery in the west, traversing Oregon's far-famed Willamette and Rogue River valleys, the latter renowned for its fruits, crossing the rugged Siskiyou Mountains on the Oregon-California boundary, skirting the base of beautiful Mt. Shasta, whose snow-capped summit remains visible for hours as the train wends its way down the picturesque Sacramento River toward the Golden Gate. For climbing Mt. Shasta, stop should be made at Sisson. Shasta Springs is one of the most charmingly located resorts and offers many attractions for a stop-over, as do numerous other less notable summer resorts along the upper canyons of the Sacramento River.

To the traveler eastward from San Francisco, via Ogden, the Southern Pacific is again the only line, but this division offers excellent service and 200 miles of superb scenery before the Sierras are crossed and the Great American Desert entered in Nevada. From Truckee, near the summit of the Sierra Nevada Mountains, one of the most interesting trips in the West may be taken, in a side trip of twelve miles by rail, up the Truckee Canyon to beautiful Lake Tahoe, a mountain lake twenty-five miles long and twelve miles wide, at an altitude of 6,000 feet and surrounded by mountain peaks still higher, some snow-capped, its waters as clear as crystal, its setting making it, as said by many, the most beautiful mountain lake in America. A steamer plies between the various points of interest, and there are good hotels, with hunting, fishing and mountain climbing.

The routes available to the passenger who desires to go via southern lines from San Francisco are several, but for the part of the journey in California, three, the Santa Fe, the Rock Island, and the Southern Pacific. The former runs via the San Joaquin Valley and Mojave, then through Arizona and Albuquerque, N. M., the latter either by the San Joaquin Valley or its Coast Line to Los Angeles and El Paso, and on to New Orleans; the Rock Island runs via Los Angeles, using Southern Pacific tracks to El Paso, whence it takes a northwesterly course through southern New Mexico to eastern termini. Further optional routes are available east of El Paso, if the passenger prefers to travel through Fort Worth, San Antonio or Dallas, thence via any of the numerous lines through St. Louis, Kansas City or Chicago. Tickets routed through New Orleans may be over any one of the several lines north and east of that city, at the option of the passenger. Hot Springs, Ark., Eureka Springs and other well-known health resorts along these various lines will offer stop-overs of interest.

Between San Francisco and Los Angeles, via the Coast Line of the Southern Pacific, one crosses the Santa Clara Valley, the prune section of the state, to San Jose, then follows the coast to the "flower town"—Santa Barbara—and through the bean and walnut sections to Los Angeles. Palo Alto is the station for visiting the Leland Stanford, Junior, University, and from San Jose the ascent to the Lick Observatory may be made. In visiting the Santa Cruz big trees, which are big redwoods, these should not be misunderstood to be the "really big trees," for the big trees of California and the world are the sequoias found in the Sierra Nevadas and easily reached from points on the Santa Fe or the Southern Pacific's San Joaquin Valley line (see below). The old mission at Monterey, and the eighteen-mile cypress drive along the beach, will more than justify a stop, and at various points other old missions may be visited. The points of interest along the other line of the Southern Pacific to Los Angeles, the route through the San Joaquin Valley, are those mentioned in connection with the Santa Fe below, these roads covering the same territory through that portion of the state.

*Rock Island* passengers between San Francisco and El Paso, as noted, traverse Southern Pacific territory, hence the attractions of the two routes are the same as far east as El Paso. Southern California offers every variety of scenery—valley, mountain and beach—and desirable stop-over points too numerous to enumerate here. After leaving the Orange Belt of the state, its trains cross [illegible] Colorado Desert into Arizona.

where Phoenix and the Salt River Valley will prove of especial interest on account of their reputation as health resorts. Side trips into Mexico are easily made from El Paso; in New Mexico the government sanitariums for tubercular sailors and soldiers, at Ft. Bayard and Ft. Stanton, may be visited.

*The Santa Fe System* from San Francisco or Los Angeles to Chicago offers many attractions. Crossing the San Joaquin Valley, the wheat and grape section of California, intensive irrigation is seen at its best. No mountains offer a greater variety of easily arranged outings, by wagon road or trail, than the Sierras, reached from various stations in the San Joaquin Valley, the grandest of these being the Yosemite trip and that into Kings River Canyon. Stage lines into the marvelous Yosemite Valley, whose scenic attractions are unique and have no parallel elsewhere, make that side trip easy and comfortable. When the trip is made one way via the big trees, it is doubly interesting and attractive. Continuing east from California, this line crosses northern Arizona. A stop should be made at Williams, whence the Grand Canyon of Arizona is visited—that "titan of chasms" that is said to have no equal anywhere in the world—213 miles long, 12 miles wide and more than a mile deep, through which runs the turbulent Colorado River. Other stop-overs for the petrified forest, or various long-ago-deserted Pueblos whose fascination is added to by the mystery that surrounds their history, are permitted, and in addition visits may be made to the Navajo, Moki and other Indian reservations (the Moki's famous snake dance occurs in August). In New Mexico a side trip to the quaint old town of Santa Fe will be well worth while.

### Railroad Rates.

The Committee on Transportation desires to submit the following rates which have been secured for the next annual session of the American Medical Association to be held in Portland, Oregon, July 11-14, 1905.

To Portland, Oregon, going via any regular direct route; returning via same or any other regular direct route: From Missouri River points; Sioux City, Iowa; Omaha, Neb.; Council Bluffs, Iowa; Pacific Junction, Iowa; Atchison and Leavenworth, Kan.; St. Joe and Kansas City and Missouri, $45.00. From St. Paul and Minneapolis, $45.00. From Chicago, $56.50. From St. Louis, $52.50. From New Orleans, $62.50.

To Portland, Ore., going via any regular direct route, returning via San Francisco or San Francisco and Los Angeles, and regular direct routes therefrom, or vice versa: From Missouri River points, $56.00. From St. Paul and Minneapolis, $63.00. From Chicago, $67.50. From St. Louis, $63.50. From New Orleans, $71.00.

From all points east of Chicago and St. Louis, the rate will be one fare plus $1.00 added to the rates above given. These tickets will be on sale on June 1, 2, 13, 14, 15, 19, 23, 24, 27, 28, 29, 30, July 1, 2, 3, 6, 7 and 8. These days apply to the points above mentioned. For points east of Chicago and St. Louis the date of sale will be advanced sufficiently to enable passengers to reach the points mentioned on any of the days specified. Tickets will be good for ninety days from date of sale, but not later than Nov. 30, 1905.

Going passage must begin on date of sale and must be continued up to first Colorado, Wyoming, Texas or Montana point en route and up to Alliance, Neb., and Ft. Williams, Ont. West thereof stopovers may be made at any point up to destination within final limit of ticket. Returning, passage must begin on date of execution. The joint agent at destination will execute tickets by attaching validation certificates thereto.

Returning stopovers will be allowed within final limit at any point west of the points mentioned above. While conditions governing stopovers are not complicated they vary somewhat and had best be learned of the joint agent by each purchaser at the time tickets are purchased or validated.

The above rates are the best which the Association has ever secured, and are so liberal that every member ought to attend this meeting and take his family for a summer's vacation in the Great West.

M. L. Harris,
Chairman Committee on Transportation.

### Announcement from Portland Committee.

The committee desires to report that all arrangements for the meeting are progressing rapidly. The meeting places for the general assembly and for the special sessions and the exhibition hall are all situated within a radius of a few blocks and only a few minutes' walk from each other and from the hotels.

Hundreds of applications for rooms have been received and all such applicants will be definitely and comfortably located before arrival, so they will know just where they are to be.

Numerous applications for the Alaska trip and also for the trip to the Orient have been received and we would urge all who desire to make these excursions to let us know at the earliest possible moment, as our arrangements depend on the numbers. We will probably be able to obtain a $60 rate for the Alaska trip.

Kenneth A. J. Mackenzie,
Chairman Committee of Arrangements.

### Yellowstone Park-Portland-California and Colorado Special Train.

The arrangements are about completed for the special train party which is being organized to leave New York City Saturday, June 24, for a forty-day trip to the Yellowstone Park (six and one-half days), and Pacific Slope, in connection with the annual meeting of the association to be held at Portland July 11 to 14. The following is the condensed itinerary: Chicago, St. Paul, Lake Minnetonka, Yellowstone Park, Butte, Tacoma, Seattle, Portland, Columbia River, San Francisco, Mt. Tamalpais, Monterey, Santa Barbara, Los Angeles, Santa Catalina Island, Mt. Lowe, Riverside, Redlands, Lucky Baldwin's Ranch, Salt Lake City, Salt Air, Royal Gorge, Glenwood Springs, Manitou, Pike's Peak, Cripple Creek, Garden of the Gods, Denver, Georgetown Loop, Kansas City, St. Louis, Niagara Falls. The party will be limited to one hundred and twenty-five persons and as nearly one hundred names have already been secured it is most important that those desiring to join this excursion should communicate at once with Dr. Frederick Holme Wiggin, 55 West Thirty-sixth street, New York City. Railroad rates are given elsewhere.

### St. Louis Delegation to Portland.

The Committee of Arrangements for the Portland session of the American Medical Association, appointed by the St. Louis Medical Society, has decided on the Burlington and Northern Pacific railroads for the out trip. The delegation will go in two parties, one leaving St. Louis June 27 and visiting the Yellowstone and Puget Sound on the out trip, the other leaving July 6 and going direct to Portland. Neither party is entirely filled as yet. Reservations should be made without delay through the committee. A considerable range of routes for the return trip is at our command. The committee consists of Dr. T. A. Hopkins, chairman, 319 Century building, and Drs. J. H. Tanquary and R. E. Schlueter.

## Marriages

Samuel G. Kelly, M.D., to Miss Ethel Roemer, both of Sedalia, Mo., April 18.

Thomas Kean, M.D., to Miss Lillie Casey, both of Providence, R. I., March 23.

James H. Green, M.D., to Miss Cora Lea Hinds, both of Guntown, Miss., April 12.

Joseph Payne, M.D., Midland, N. J., to Miss Edith Reader of Pittsfield, Mass., April 17.

James Fisher, M.D., Dixonville, Pa., to Miss Amy F. Kane of Washington, D. C., April 5.

Austin James Kemp, M.D., Allapaha, Ga., to Mrs. Daisy Henderson of Leslie, Ga., April 6.

Frederick Oakman Virgin, M.D., to Miss Florence Soria, both of New York City, April 13.

Solon L. Coleman, M.D., to Miss Willie Tisdale Hudson, both of Uniontown, Ala., April 4.

Hiram H. Gunby, M.D., to Mrs. Sallie R. Paterson, both of Crisfield, Md., at Philadelphia, April 6.

D. Lewis, M.D., Portland, Ore., to Miss Camille Gunlach, daughter of Dr. Louis W. Gundlach of Blaine, Wash., March 18.

Abner Osburn Albin, M.D., of Charlestown, W. Va., to Miss Gertrude Cornelia Show of Shepherdstown, W. Va., April 12.

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## Deaths

**Jarvis King Mason**, M.D. Harvard University Medical School, Boston, 1861, medical examiner for the town of Suffield, Conn., for 22 years, and once president of the Hartford County Medical Association; a member of the Harvard Alumni Medical Association and of the American Academy of Medicine, died at his home in Suffield, April 8, from cerebral hemorrhage, aged 73.

**Julian Taintor Williams**, M.D. Castleton (Vt.) Medical College, 1851, a member of the Dunkirk (N. Y.) Board of Education for 46 years, and its president for 26 years; for four terms representative in the House of Assembly; editor of the Dunkirk *Evening Observer*, died at his home in Dunkirk, April 10, from cerebral hemorrhage, after an illness of three weeks, aged 75.

**John Waterman Harris Baker**, M.D. Dartmouth Medical School, Hanover, N. H., 1843, for 50 years a practitioner of Davenport, Iowa; assistant surgeon of volunteers during the Civil War; formerly secretary and president of the Iowa State Medical Society, died at his home in Davenport, April 7, from senile debility, aged 83.

**Loren True Day**, M.D. Yale University Medical Department, New Haven, Conn., 1880; health officer of Westport, Conn.; president of Fairfield County Medical Society in 1900; a member of the Connecticut Medical Society, died at his home in Westport, April 1, from tuberculosis of the lungs after a long illness, aged 48.

**John Gordon Stewart**, M.D. College of Physicians and Surgeons, Baltimore, 1882, of Pitcairn, Pa., a member of the American Medical Association; one of the most prominent practitioners of the Turtle Creek Valley, died in Mercy Hospital, Pittsburg, April 9, after an operation for intestinal disease, aged 53.

**Herbert W. Cardwell**, M.D. Medical Department of Willamette University, Salem, 1887, a member of the American Medical Association, surgeon-general Oregon National Guard, 1895-1898; major and surgeon U. S. Volunteers 1898 to 1901, died recently and was buried from his residence in Portland, April 5.

**Hector McNeill Grant**, M.D. Louisville Medical College, of Helena, Ark., surgeon in the Confederate service during the Civil War; several times mayor of Helena, and four times state senator, died at the home of his daughter in Clarksdale, Miss., April 6, after a long illness, aged 82.

**Samuel Gregg George**, M.D. Medical College of Ohio, Cincinnati, assistant surgeon of Ramsey's Company, First Regiment, Ohio Volunteers, in the Mexican War, and thereafter a resident of California, died at his home in Porterville, April 3, after a short illness, aged 91.

**Robert K. Carter**, M.D. Jefferson Medical College, Philadelphia, 1858, of Stephens City, Va., a surgeon in the Confederate service during the Civil War, died in New York City in December last from nephritis, after an illness of five months, aged 68.

**Andrew D. Hawley**, M.D. Medical College of Ohio, Cincinnati, 1848, one of the founders of the Union District Medical Society, and a pioneer of Butler County, Ohio, died at his home in College Corner, March 31, from senile debility, aged 81.

**Moses S. Hall**, M.D. Examination, W. Va., of Harrisville, for half a century a practitioner of Ritchie County, W. Va., and at one time representative in the state legislature, died at the home of his daughter in Parkersburg, April 9, aged 81.

**Henry Chenoweth**, M.D. University of Louisville Medical Department, 1844, the oldest practitioner in Jefferson County, Ky., died at his home in St. Matthews, near Louisville, April 15, after an illness of only four days, aged 80.

**Samuel N. Bemis**, M.D. Vermont Medical College, Woodstock, 1848, thrice member of the legislature from Stamford and once from Dummerston, died at his home near Brattleboro, Vt., April 9, from influenza, aged 81.

**William Chilton**, M.D. Transylvania University Medical Department, Lexington, Ky., 1830, who retired from practice 30 years ago, died at his home in Hempstead, Texas, Dec. 2, 1904, from senile debility, aged 84.

**Patrick H. Thornton**, M.D. University of Louisville (Ky.) Medical Department, 1857, chief surgeon in the Confederate service during the Civil War, died at his home in Larkspur, Cal., March 24, aged 69.

**Worthington William Myers**, M.D. University of Maryland School of Medicine, Baltimore, for 12 years a medical inspector of the Philadelphia Board of Health, died in that city, March 11, aged 60.

**Benjamin Smith Breczeal**, M.D. Medical College of Georgia, Augusta, 1868, died at his home in Hawkinsville, Ga., February 12, from pneumonia, after an illness of one month, aged 72.

**George A. Davie**, M.D. College of Physicians and Surgeons in the City of New York, 1874, died at his home in Sidney Center, N. Y., from nephritis, after a brief illness, April 6, aged 55.

**John W. Bricker**, M.D. Detroit Medical College, 1871, at one time mayor of Fostoria, Ohio, died at his home in that city, April 15, from heart disease, after a long illness, aged 77.

**Thomas E. Edwards**, M.D. Medical Department University of Tennessee, Nashville, 1883, of Memphis, Tenn., died at Union City, Tenn., February 27, after a long illness.

**Thomas J. Kennedy**, M.D. Medical Department of the University of South Sewanee, Tenn., 1900, died at his home in Haleburg, Ala., early in April, from tuberculosis.

**John S. Baker**, M.D. Cincinnati, 1854, of St. Joseph, Mo., died in a hospital in that city, April 7, after an illness of a few hours, from cerebral hemorrhage, aged 74.

**Presley A. Rosenberger**, M.D. St. Louis Medical College, 1859, of Petersburg, Ill., died at the home of his son in El Reno, Okla., from heart disease, April 8, aged 80.

**Joseph C. Wilson**, M.D. Starling Medical College, Columbus, 1851, postmaster of Edinboro, Pa., from 1886 to 1890, died at his home in that city, March 25, aged 77.

**James Milton Nichols**, M.D. Missouri Medical College, St. Louis, 1881, died at his home in Milford, Ark., March 18, from pneumonia, after a short illness, aged 71.

**Charles V. F. Ludwig**, M.D. St. Louis Medical College, 1856, one of the oldest practitioners of St. Louis, died at his home in that city, April 14, from heart disease.

**Alexander Kindermann**, M.D. Rush Medical College, Chicago, 1883, died at his home in Eugene, Md., April 2, from cancer, after an illness of 10 months, aged 46.

**Dumont Fairmount Morenzy**, M.D. Philadelphia College of Medicine and Surgery, 1854, died at his home in Boody, Ill., April 7, from heart disease, aged 72.

**Abner Crane Williamson**, M.D. Ohio, 1879, died suddenly at his office in Champaign, Ill., from cerebral hemorrhage, April 8, aged 65.

**William H. Hoskinson**, M.D. Miami Medical College, Cincinnati, 1882, died at his home in Trimble, Ill., February 20, aged 50.

**John F. Everhart**, M.D. Medical Department of the St. Louis University, 1851, died recently at his home in Detroit, Mich., aged 73.

**James W. Walker**, M.D. Harvard University Medical School, Boston, 1880, died at his home in Los Gatos, Cal., April 5, aged 47.

**Frank S. Filkins**, M.D. Years of Practice, Illinois, formerly of Barrington, died at Arlington Heights, Ill., February 20, aged 65.

**Thomas W. Fullilove**, M.D. Bellevue Hospital Medical College, New York City, 1875, died at his home in Boerne, Texas, April 4.

**Elizabeth Johnson**, M.D. Massachusetts, died at her home in Brockton, Mass., March 2, aged 76.

**Jacob G. Sharp**, M.D. Pennsylvania, 1875, died at his home in Philadelphia, February 4.

**Frederick A. Krill**, M.D. Ohio, 1882, died recently at San Luis Obispo, Cal.

# Miscellany

## CLIPPINGS FROM LAY EXCHANGES.

### CASE OF WATER ON THE KIDNEYS.

"Dr. —— died at his home * * * *. The cause of death was aqueous Bright's disease."—*New Bedford* (Mass.) *Standard,* March 9, 1905.

### SPIT ONLY ON RED AND YELLOW CARS.

"Dr. ——, of C——, who was arrested for spitting while on a green car, was fined $1.00 and costs in C—— police court Tuesday."—*Cincinnati Post,* Jan. 14, 1905.

### HAD A NEW NERVE.

"Mr. —— went to Jamaica for his health, he then being a sufferer with a disease of the frontal nerve in the head." —Stanton, Va., April 3, special dispatch to the *Baltimore Sun.*

### INTESTINAL ANOMALY.

"A postmortem * * * * held on the body of Mrs. —— * * * * showed that the large intestine from the stomach to the bowels was closed by a growth."—*Hartford City* (Ind.) *Daily Gazette,* Feb. 20, 1905.

### SHE HAD SEVERAL AORTAS.

"Coroner —— had the remains removed to the morgue, where a postmortem will be performed * * * *. The bullet entered the back and is supposed to have severed one of the lower aortae, causing death by internal hemorrhage." —*Baltimore Sun,* Jan. 18, 1905.

### NEW SPECIALTY.

"Dr. —— has already leased an office and has a shingle out, ready for the practice of his new profession. Dr. —— rerecently received a diploma for the practice of spinology * * * * He has no competition in his particular branch of practice."—*Duluth News-Tribune,* Oct. 13, 1904.

### MADE A POSTMORTEM STATEMENT.

BUFFALO, Feb. 2.—A special to the *News* from Hornellsville says that Mrs. —— has made a postmortem statement in which she blames Driver Q—— for the grade-crossing disaster. Two mothers and two daughters were among those killed. * * * * The party was given in honor of Mrs. ——, who was 75 years of age."

### HE GOT IT IN THE NECK.

"F. W. R—— * * * * had been troubled with a cataract on his left eye * * * *. When the doctor seen that there were no hope of recovering the use of this eye * * * * Dr. —— performed one of the most skillful operations known to science, that of uniting the optic nerve of the left eye to the nerve of the right eye. The operation was performed in the back of the neck."—*Chandlerville* (Ill.) *Times.*

**His Average Fee for Appendicitis.**—A distinguished Boston surgeon, who not infrequently receives $1,000 or more for an abdominal or other major surgical operation, recently analyzed his operations for appendicitis from a financial point of view. He found that, taking them all together, he had received an average of $15 apiece for them. This, of course, means that the operations he had done for nothing greatly outnumbered those he had been paid for.—*St. Paul Medical Journal.*

**New Journals.**—The first number of the *American Journal of Surgery,* the origin of which has been described in THE JOURNAL, has been received and is worthy of commendation as to its shape, style, character of matter, etc. It promises to be a valuable journal for the general surgeon. Dr. Walter M. Brickner is the editor.——*Revista Medica Hispano-Americana* is the name of a new medical journal published in the Spanish language under the editorship of Dr. E. J. Gardiner, Chicago. The character of the contents indicates that the editor intends to make of this a high-class scientific journal. It may seem strange to publish in the center of an English-speaking country a journal in the Spanish language, but when we realize the number of Spanish-speaking countries immediately tributary to the United States, we can readily appreciate the advantage of such a journal. There is a certain amount of jealousy existing between the various small islands and countries south of us which prevents the co-operation of the profession of these various countries in patronizing a first-class journal published in any one of them. Coming from the United States, it is more probable that a journal in the Spanish language will receive the support that it would not otherwise receive. If the character of the journal is kept up to the standard of the initial number it deserves to succeed.——The initial number of *First Aid,* the official journal of the American White Cross First Aid Society, has just been received. Besides containing information in regard to the organization and its objects, with an outline of lectures, etc., it contains articles on the Red Cross Society of Japan, lectures on first aid, especially covering the skeleton, bandaging, etc., and other matters pertaining to health and preventive medicine. It is a creditable journal and speaks well for the enterprise of this new organization. It is published in Chicago.——*Archives of Physiological Therapy* is a new publication from Boston. The title is somewhat misleading, as the contents are almost wholly on the various subjects related to the uses of electricity and radiant energy. Dr. Clarence Edward Skinner is the editor, and his journal has an excellent appearance.——*The Way to Win* is a new journal published in Chicago and edited by Dr. Alfred S. Burdick, of the *Alkaloidal Clinic.* It is devoted to suggestions on success in the practice of medicine. It contains excellent advice on various subjects of interest to the physician.

# Queries and Minor Notes

ANONYMOUS COMMUNICATIONS will not be noticed. Queries for this column must be accompanied by the writer's name and address, but the request of the writer not to publish his name will be faithfully observed.

## WHAT CONSTITUTES DISMISSAL FROM A CASE?

——, ILL., April 5, 1905.

*To the Editor:*—Dr. A and Dr. B are both very busy general practitioners in a town of between ten and fifteen thousand inhabitants. A is called to see a patient, and, when he reaches there, after due inquiry into the history of the case, he elicits the information that B, who formerly held the case, has not been duly notified. This A demands before he agrees to take the case. The parent of the patient immediately calls B by telephone in the presence of A and simply notifies B that, inasmuch as he had told them that the case was a hopeless one, they had decided to call A. The patient recovered. A later made application for membership in the county society and through the influence of B was rejected on the ground of being unethical in the above case, B claiming that A should not have consented to take the case until he had ascertained if B had been paid in full for services rendered in this case and that A himself should have asked B if he had given up the case. Is A or B right?

ANSWER.—This case should be capable of ready adjustment by the parties involved. On paper, the point at issue seems to be what constitutes dismissal from a case "in due form." One party contends that the method employed was sufficient, and probably most adjudicating bodies would so rule. The other party contends that dismissal "in due form" includes payment of the bill for services of the first attendant, together with direct communication between the last-called physician and the first attendant. It is usual for the dismissed physician to ask payment for his services, and it should certainly be granted by the family, but it seems to us arbitrary and uncalled for to demand that the bill be paid before the family may have any further medical advice. For example, a patient *in extremis* could not, in common humanity, be left without medical attention during negotiations looking to the payment of an abruptly presented bill. The breach of the niceties of the case—if any existed—would on its face seem hardly adequate ground for refusal of membership in the organization.

In any event, we would not pass judgment on the submitted case, because we are not the constituted tribunal and because we have only the facts as viewed by one side. As to what is to be done, the answer is easy. A should appeal to the councilor of the district and ask a proper hearing. Then he should pursue his appeal through the proper constituted authorities until it is clear that he has had a full hearing and a fair verdict on his right to organization fellowship.

## COMPOSITION OF SOMNOFORM.

TOWNSEND, MONT., April 7, 1905.

*To the Editor:*—What is the composition of somnoform? Has it anything to recommend it over nitrous oxid or ether in minor surgery and dentistry? J. P. RITCHEY, M.D.

ANSWER.—Somnoform is a suggestive name given to an anesthetic mixture of ethyl chlorid, 60 parts; methyl chlorid, 35 parts, and ethyl bromid, 5 parts—all by weight. Similar mixtures have been proposed from time to time, notably that of Schleich and anesthol, originated by W. Meyer (THE JOURNAL, Feb. 28, 1903), composed of ethyl chlorid, 17 parts; chloroform, 36 parts, and ether, 48 parts—by weight. The theory regarding anesthesia produced by these mixtures concerns the adjustment of the specific gravities and boiling points by mixing these volatile liquids in certain proportions, and is considered at length in the article referred to.

### THE AUTOMOBILE FOR PHYSICIANS.

MUSCODA, WIS., April 17, 1905.

*To the Editor:*—There has been no information published in THE JOURNAL for over three years concerning the automobile as a vehicle for physicians' use; yet THE JOURNAL of late has become a very popular medium for advertising this machine. Surely some physicians can give their fellow-workers valuable pointers that will be much appreciated by intending purchasers. Which power is best—electricity, steam or gasoline? How many horse power is needed for physicians' use? Is a top desirable? Can a country physician use an automobile successfully? Let us hear from your readers.

C. R. PICKERING, M.D.

## *State Boards of Registration*

### COMING EXAMINATIONS.

Kansas State Board of Medical Registration and Examination, Kansas City, April 25-26. Secretary, G. F. Johnston, M.D., Lakin.

Board of Medical Examiners for the State of Texas, Austin, May 2. Secretary, M. M. Smith, M.D., Austin.

Indiana State Board of Medical Registration, State House, Indianapolis, May 2-4. Secretary, W. T. Gott, M.D., Crawfordsville.

Louisiana State Board of Medical Examiners, New Orleans, May 4-5. Secretary, Felix A. Larue, M.D., New Orleans.

Mississippi State Board of Health, Jackson, May 9-10. Secretary, J. F. Hunter, M.D., Jackson.

New York State Homeopathic and Eclectic Boards, New York, Albany, Syracuse and Buffalo, May 16-19. Chief of Examinations Division, Charles F. Wheelock, State Capitol, Albany.

Board of Medical Examiners of the State of North Carolina, May 17. Secretary, George W. Pressly, M.D., Charlotte, N. C.

Massachusetts Board of Registration in Medicine, State House, Boston, May 9-10. Secretary, Edwin B. Harvey, M.D., Room 159, State House, Boston.

**Connecticut March Report.**—Dr. Charles A. Tuttle, secretary of the Connecticut Medical Examining Board, reports the written examination held at New Haven, March 14-15, 1905. The number of subjects examined in was 11; number of questions asked, 70; percentage required to pass, 75. The total number of applicants examined was 26, of whom 20 passed and 6 failed. The following colleges were represented:

PASSED.

| College. | Year Grad. | Per Cent. |
|---|---|---|
| College of P. & S., Baltimore | (1904) | 79.1 |
| Long Island College Hospital | (1901) 75.3; (1904) | 83.7 |
| Harvard University | (1903) | 78.4 |
| Yale Medical School | (1903) 84.3, 87.6; (1904) 81.9, 82.1, 86.4, | 87.8 |
| University of Naples | (1901) | 79.1 |
| University of Vermont | (1904) 76, 80.8, 81, | 81.8 |
| Maryland Med. Coll. | (1904) | 78.2 |
| University of Buffalo | (1900) | 76.2 |
| Tufts Medical College | (1903) | 76.1 |
| College of P. & S., New York | (1902) | 84.4 |
| Johns Hopkins University | (1903) | 81.1 |

FAILED.

| College. | Year Grad. | Per Cent. |
|---|---|---|
| Baltimore Med. College | (1903) | 70.4 |
| University of Vermont | (1898) | 73.1 |
| College of P. & S., Boston | (1904) | 70.7 |
| College of P. & S., Baltimore | (1901) | 67.6 |
| Laval University | (1904) | 74.1 |
| University of Maryland | (1904) | 68.3 |

**Montana April Report.**—Dr. William C. Riddell, secretary of the Board of Medical Examiners of Montana, reports the written examination held at Helena, April 4 and 5, 1905. The number of subjects examined in was 10; total number of questions asked, 50; percentage required to pass, 75. The total number of applicants examined was 23, of whom 14 passed and 9 failed. The following colleges were represented:

PASSED.

| College. | Year Grad. | Per Cent. |
|---|---|---|
| *Hahnemann Medical College, Philadelphia | (1901) | 76 |
| Northwestern University | (1904) | 75 |
| Rush Medical College | (1903) | 75 |
| University of Missouri | (1905) | 75 |
| College of P. & S., Chicago | (1903) 82; (1904) | 85 |
| College of P. & S., Baltimore | *(1903)* | *81* |
| *Harvard Medical School* | (1901) | 80 |
| University of Edinburgh, Scotland | (1903) | 82 |
| University of Virginia | (1897) | 84 |
| Cooper Medical College | (1898) | 85 |
| University of Michigan | (1902) | 80 |
| Jefferson Medical College | (1893) | 83 |
| Medical School of Maine | (1901) | 79 |

FAILED.

| College. | Year Grad. | Per Cent. |
|---|---|---|
| University of New York | (1893) | 42 |
| Bennett Medical College, Chicago | (1897) | 66 |
| Medical College of Virginia | (1904) | 66 |
| University of Vermont | (1903) | 62 |
| **Rush Medical College | (1900) | .. |
| Hamline University | (1903) | 53 |
| Illinois Medical College, Chicago | (1898) | 62 |
| University of Minnesota | (1904) | 69 |
| Detroit College of Medicine | (1903) | 71 |

*Second examination.

**Withdrew from examination.

**North Dakota April Report.**—Dr. H. M. Wheeler, secretary of the North Dakota State Examining Board, reports the written examination held at Grand Forks, April 4-6, 1905. The number of subjects examined in was 13, and percentage required to pass, 75. The total number of persons examined was 13, of whom 10 passed and 3 failed. The following colleges were represented:

PASSED.

| College. | Year Grad. | Per Cent. |
|---|---|---|
| University of Minnesota | (1904) | 78, 84 |
| University of Illinois | (1903) 75; (1904) | 79, 80 |
| Marion Sims-Beaumont Med. Coll. | (1904) | 87 |
| Northwestern University | (1904) | 77 |
| University of Toronto | (1904) | 86 |
| Chicago Homeo. Med. Coll | *(1895)* | *78* |
| Hamline University | (1903) | 83 |

FAILED.

Of the three failures, one was an undergraduate, one a graduate of Keokuk Medical College (1903), and one a graduate of Northwestern University (1904).

## *The Public Service*

### Army Changes.

Memorandum of changes of station and duties of medical officers, U. S. Army, week ending April 15, 1905:

Rockhill, E. P., asst.-surgeon, left Presidio of San Francisco, Cal., on 30 days' sick leave of absence.

Hathaway, L. M., asst.-surgeon, granted two months' leave of absence, to take effect when relieved from duty in Alaska.

Girard, A. C., brigadier-general, retired from active service at his own request, having attained the age of 62 years.

Fowler, J. B., acting asst.-surgeon, department letter of Feb. 13, 1905, granting leave of absence for thirty days revoked.

Ford, Clyde S., and Hartnett, E. H., asst.-surgeons, ordered to report to commanding officer, Artillery District, Potomac, Fort Washington, Md., not later than May 1, 1905, for duty in connection with joint Army and Navy exercises.

Wilson, James S., Greenlauf, Henry S., and Miller, Reuben B., asst.-surgeons, ordered to report to commanding officer, Artillery District of Baltimore, Fort Howard, Md., for duty in connection with joint Army and Navy exercises, not later than May 1, 1905.

Humphreys, H. G., asst.-surgeon, left Washington, D. C., on 30 days' leave of absence.

Manly, C. J., asst.-surgeon, granted 30 days' leave of absence.

Birmingham, H. P., surgeon, relieved from duty as chief surgeon, Department of Texas, and ordered to Fort McPherson, Ga., for duty.

Gray, Wm. W., surgeon, relieved from duty at Fort McPherson, Ga., and ordered to Atlanta, Ga., for duty as chief surgeon, Department of the Gulf.

Straub, Paul F., asst.-surgeon, relieved from duty at Fort Leavenworth, Kan., and ordered to report in person to the Secretary of War for further orders.

Banister, John M., surgeon, on arrival at San Francisco, to proceed to Fort Riley, Kan., for station.

Raymond, H. I., surgeon, on arrival at San Francisco, to proceed to Columbus Barracks, Ohio, for station.

Wickline, Wm. A., asst.-surgeon, left Washington, D. C., on 12 days' leave of absence.

Morris, Edward R., and Carter, Wm. F., surgeons, and Collins, C. C., Hess, Louis T., Eastman, W. R., Rich, Edwin W., Metcalfe, R. F., asst.-surgeons, relieved from duty in the Philippines Division, and ordered to proceed to San Francisco and report to the military secretary for further orders

Lauderdale, Clarence E., dental surgeon, left Fort Ringgold, Texas, and arrived at Fort Bliss, Texas.

Rebert, Michael A., contract surgeon, granted an extension of ten days to his leave of absence.

Probert, Merton A., contract surgeon, left Fort Crook, Neb., on leave of absence.

### Navy Changes.

Changes in the medical corps, U. S. Navy, for the week ending April 15, 1905:

Smith, G. T., surgeon, ordered to the *Maryland*.

Lumsden, G. P., surgeon, detached from the *Minneapolis* and ordered to the *Olympia*.

Norton, O. D., surgeon, detached from the *Olympia* and ordered to the *Minneapolis*.

(*Orders* issued by the Commander-in-Chief of the Asiatic fleet.)

Strine, H. F., asst.-surgeon, detached from the *Helena* and ordered to the *Barry*.

Field, J. G., surgeon, detached from the *Bennington* and ordered to the *Solace*.

Cordeiro, F. J. B., surgeon, detached from the *Solace* and ordered home to wait orders.

Baker, J. W., surgeon, retired, ordered to additional duty in performance of medical attendance of officers of the Navy and Marine Corps in the vicinity of Boston, Mass., not otherwise provided with medical attendance.

Peck, A. E., P. A. surgeon, detached from the *Pensacola* and ordered to the *Bennington*.

Stepp, J., P. A. surgeon, detached from Training Station, Newport, R. I., and ordered to the *Topeka*.

Furlong, F. M., P. A. surgeon ordered to report to the Surgeon General for special duty in the Bureau of Medicine and Surgery, Navy Department.

Ohnesorg, K., P. A. surgeon, detached from the *Topeka* and ordered to the Museum of Hygiene and Medical School, Washington, D. C., for course of instruction.

Cather, D., asst-surgeon, detached from the Naval Hospital, New York, N. Y., and ordered to the Naval Training Station, Newport, R. I., with additional duty on the *Constellation*.

Shipp, E. M., from the Naval Hospital, N. Y., Pryor, J. C., from the Naval Hospital, Narragansett Bay, R. I., surgeons, L. W. Bishop from the *Southery*, J. H. Iden detached from the Naval Hospital, Narragansett Bay, R. I., F. L. Benton from the Naval Recruiting Station, Philadelphia, Pa., Shiffert, H. C., from the U. S. R. S. *Franklin*, Murphy, J. A., from the Navy Yard, Washington, D. C., P. A. surgeons, Farwell, W. G., medical director, retired, ordered to the Naval Recruiting Station, Philadelphia, Pa., April 26.

Leys, J. F., P. A. surgeon, ordered to Washington, D. C., April 28, for course of instruction at the Naval Museum of Hygiene and Medical School.

Fiske, C. N., P. A. surgeon, detached from the Naval Hospital, Boston, Mass., April 26, and ordered to Washington, D. C., April 28, for course of instruction at the Naval Museum of Hygiene and Medical School.

## Public Health and Marine-Hospital Service.

List of changes of station and duties of commissioned and non-commissioned officers of the Public Health and Marine-Hospital Service for the seven days ending April 12, 1905:

Mead, F. W., surgeon, granted leave of absence for six days from April 24.

Cumming, H. S., P. A. surgeon, granted leave of absence for ten days from April 15.

Fricks, L. D., P. A. surgeon, granted three days' leave of absence from April 3, 1905, under Paragraph 191 of the Regulations.

Earle, B. H., asst.-surgeon, to proceed to certain points in Oregon for special temporary duty.

Stimson, A. M., asst.-surgeon, relieved from duty in the Hygienic Laboratory, and directed to proceed to Ellis Island, N. Y., and report to Surgeon G. W. Stoner for duty.

Wightman, W. M., asst.-surgeon, granted leave of absence for three days from March 18, 1905, under Paragraph 191 of the Regulations

Mullan, E. H., asst.-surgeon, relieved from duty at New York (Stapleton), N. Y., and directed to proceed to Ellis Island, N. Y., and report to Surgeon G. W. Stoner for duty.

Drew, A. D., acting asst.-surgeon, granted leave of absence for two days, March 8 and March 24, 1905, under Paragraph 210 of the Regulations.

Stafford, M. V., acting asst.-surgeon, to proceed to Portland, Maine, for special temporary duty.

McKay, M., pharmacist, to report to chairman of board for physical examination to determine his fitness for promotion to the grade of pharmacist of the first class.

Watters, M. H., pharmacist, granted leave of absence for fifteen days from April 12.

### PROMOTIONS.

Asst.-Surgeon T. D. Berry commissioned (recess) as P. A. surgeon, to rank as such from March 24.

Asst.-Surgeon A. J. McLaughlin commissioned (recess) as P. A. surgeon, to rank as such from April 10.

### APPOINTMENT.

Dr. Mary A. Israel appointed medical inspector for duty at Manila, P. I.

### BOARDS CONVENED.

Board to meet at Washington, D. C., April 10, 1905, for the physical examination of an officer of the Revenue Cutter Service. Detail for the board: Assistant Surgeon-General W. J. Pettus, chairman; Assistant Surgeon H. McG. Robertson, recorder.

Board to meet at Boston, April 12, 1905, for the physical examination of Pharmacist M. McKay to determine his fitness for promotion to the grade of pharmacist of the first class. Detail for the board: Surgeon R. H. Woodward, chairman; Assistant Surgeon W. C. Rucker; Acting Assistant Surgeon F. H. Cleaves, recorder.

Board to meet at Washington, D. C., April 17, 1905, for the physical examination of officers of the Revenue Cutter Service. Detail for the board: Assistant Surgeon-General W. J. Pettus, chairman; Assistant Surgeon H. McG. Robertson, recorder.

Board to meet at San Francisco April 20, 1905, for the physical examination of an officer of the Revenue Cutter Service. Detail for the board: P. A. Surgeon W. G. Stimpson, chairman; P. A. Surgeon J. M. Holt, recorder.

Board to meet at San Juan, Porto Rico, April 24, 1905, for the physical examination of an officer of the Revenue Cutter Service. Detail for the board: P. A. Surgeon W. W. King, chairman; Acting Assistant Surgeon P. V. Atiles, recorder.

Board to meet at Port Townsend, Wash., April 24, 1905, for the physical examination of officers of the Revenue Cutter Service. Detail for the board: P. A. Surgeon J. H. Oakley, chairman; P. A. Surgeon, D. E. Robinson, recorder.

## Health Reports.

The following cases of smallpox, yellow fever, cholera and plague have been reported to the Surgeon General, Public Health and Marine Hospital Service, during the week ended April 14, 1905:

### SMALLPOX—UNITED STATES.

Florida: Jacksonville, April 1-8, 7 cases.

Illinois: Cairo, April 3, 5 cases; Danville, April 1-8, 3 cases.

Louisiana: New Orleans, April 1-8, 26 cases, 1 death, March 1-31, Pointe Coupee Parish, several cases; St. James Parish, several cases; St. John Parish, 1 case.

Michigan: Grand Rapids, April 1-8, 2 cases, 1 death; at 47 localities, March 18-25, present.

Mississippi; Natchez, March 25-April 8, 2 cases.

Missouri. St. Louis, April 1-8, 28 cases, 8 deaths.

Nebraska: April 1-8, Omaha, 1 case; South Omaha, 1 case.

New York: New York, April 1-8, 4 cases.

North Carolina: April 3, Goose Creek Island, 50 cases; Hog Island, 15 cases.

Ohio: Cincinnati, March 31-April 7, 6 cases.

South Carolina: Charleston, April 1-8, 2 cases.

Tennessee: Memphis, April 1-8, 7 cases.

### SMALLPOX—FOREIGN.

Africa: Sierre Leone, March 10-17, 240 cases.

Brazil: Bahia, Feb. 25-March 11, 24 cases, 1 death; Escadia, March 11, epidemic; Rio de Janeiro, March 12-19, 8 cases, 4 deaths.

Ecuador: Guayaquil, March 7-14, 4 deaths.

France: Paris, March 18-25, 29 cases, 5 deaths; St. Etienne, March 1-15, 2 cases.

Germany: Bremen, March 18-25, 1 case.

Great Britain: Cardiff, March 25-April 1, 1 case; Hull, March 18-25, 2 cases; Leeds, March 25-April 1, 12 cases; March 18-25, London, 3 cases; Nottingham, 1 case.

India: Bombay, March 7-14, 172 deaths; Calcutta, March 4-11, 10 deaths; Karachi, Feb. 5-12, 18 cases, 2 deaths; Madras, March 4-10, 6 deaths.

Italy: Catania, March 23-30, 1 death; Lecce, March 8-16, 6 cases; Palermo, March 18-25, 13 cases, 4 deaths.

Mexico: City of Mexico, March 25-April 1, 2 cases, 2 deaths.

Russia: March 18-25, Moscow, 7 cases, 3 deaths; Odessa, 4 cases, 2 deaths; St. Petersburg, Feb. 11-March 18, 41 cases, 12 deaths; Warsaw, Jan. 21-28, 1 death.

Turkey: Smyrna, Dec. 25-Jan. 1, 1 death; Smyrna, Feb. 12 19, 1 death.

### YELLOW FEVER.

Brazil: Rio de Janeiro, March 12-19, 8 cases, 3 deaths.

Mexico: Coatzacoalcos, March 26-April 1, 1 case, 1 death.

Panama: Jan. 1-March 27, 43 cases, 18 deaths.

### CHOLERA.

India: Calcutta, March 4-11, 32 deaths.

Russia: Baku Government, Feb. 17-24, 1 death; Don Territory, Feb. 5-17, 7 cases, 3 deaths.

### PLAGUE.

Africa (Britsh): Durban, Jan. 29-Feb. 11, 4 cases, 4 deaths.

Arabia: Aden, March 10-17, 60 cases, 53 deaths.

Brazil: Rio de Janeiro, March 12-19, 2 cases.

Chile: Coplano, March 10, present; Coquimbo, March 14, present; Pisagua, March 10, epidemic.

Egypt: Tukh, March 4-11, 1 case; Bombay, March 7-14, 683 deaths; Calcutta, March 4-11, 315 deaths: Karachi, Feb. 5-12, 77 cases, 71 deaths.

Peru: Cajamarca, March 10, present.

# *Society Proceedings*

## COMING MEETINGS.

American Medical Association, Portland, Ore, July 11-14, 1905.

American Gastro-Enterological Assn., New York, April 24-25.
Medical and Chirurg. Faculty of Maryland, Baltimore, Apr. 25-27.
Texas State Medical Association, Houston, April 25-28.
Nebraska State Medical Association, Beatrice, May 2-4.
American Proctological Society, Pittsburg, May 5-6.
American Therapeutic Society, Philadelphia, May 4-6.
Utah State Medical Association, Salt Lake, May 9-10.
Medical Society of Nevada, Reno, May 9-10.
Louisiana State Medical Society, New Orleans, May 9-11.
New Mexico Medical Society, Las Vegas, May 10.
Ohio State Medical Association, Columbus, May 10-12.
American Ophthalmological Society, Boston, May 11-12.
American Association of Physicians, Washington, May 16-17.
Arkansas Medical Society, Little Rock, May 16-17.
Illinois State Medical Society, Rock Island, May 16-18.
Iowa State Medical Society, Des Moines, May 17-19.
New Hampshire Medical Society, Concord, May 18-19.
Missouri State Medical Assn., Excelsior Springs, May 17-18.
Montana State Medical Association, Butte, May 17-18.

## CONFERENCE OF AMERICAN ANATOMISTS.

*Held in Philadelphia, April 11-12, 1905.*

*(Concluded from page 1207.)*

This conference was marked by harmony and enthusiasm. It is expected that the Wistar Institute will become a clearing house for anatomy in America. The result promises to show that the conference was one of the most important steps ever taken in the development of American anatomy.

Dr. Chas. S. Minot of Harvard University was elected chairman and Dr. M. J. Greenman secretary.

### The Outlines of Work Proposed.

A general discussion resulted in an unanimous opinion that the Wistar Institute of Anatomy offered unusual facilities for defining American anatomy. It was thought that research material might be collected and prepared there, especially material for neurologic and embryologic research; that original preparations, which had been studied and which are, therefore, of much greater value, should be deposited in the Wistar Institute Museum for future use of students who wish to review the work. Dr. Geo. S. Huntington spoke of the importance of organized efforts to collect and properly to prepare a vast amount of anatomic material which goes to waste and which should, instead, be used while fresh. Dr. Barker urged that the Institute could act as a trust company for all institutes and thus in it research material might be kept for reference and special collections received. Professor Gage suggested the photographing of valuable type embryo sections, which could be sent about instead of the originals.

Many of those present laid special stress on the importance of research Dr. McMurrich said that the museum could not be separated from research, and mentioned the Hunterian Museum as an example. Dr. Piersol urged the immediate establishment of research work and the development of museum series of comparative anatomy. Dr. Conklin thought that the institute should develop a high degree of technical skill. Dr. Donaldson recommended the establishment of particular lines of research as a prerequisite for the collection of material and the development of a museum, and Dr. Mall advised that the institute should have a number of researchers in its own laboratories.

### The Plan of Work Adopted

As a result of this trend of thought the committee, Drs Minot, Donaldson and Mall, appointed to form a plan of work, reported on the second day as follows:

1 The principal object of the Wistar Institute to be research and under these headings·
(a) A chair of investigation (b) Research assistants or assistantships and men who shall divide their time between the museum proper and research (c) Technical assistants
2 Research and Materials: Researches shall be in the field of neurology, comparative anatomy and embryology.
3 Relations· Committee recommends (a) that the subvention to the *Journal of Anatomy* be granted (b) That a committee be appointed to consider relations of the Wistar Institute to American anatomists (c) That the Wistar Institute apply to the Association of American Anatomists for co operation.
4 An advisory board of ten should be apointed for general purposes: (a) To form a committee on neurology as well as other committees which may be needed. (b) To establish relations with the committee of the International Association of Academies for Brain Investigation and with other committees for collective investigation

While the general trend of work above outlined is recommended there is no intention to advise limitation of the functions of the institute to it exclusively.

### Election of Officers.

The report was accepted and the advisory board appointed Dr C S Minot was chosen chairman and Dr. M. J. Greenman permanent secretary. The advisory board appointed the following subcommittees: Neurology, Drs. Mall, Minot, McMurrich, Donaldson and Barker; relations of the institute to anatomists, Drs. Gage, Piersol and Huber; development of the institute in comparative anatomy and embryology, Drs. Mall, Conklin and Huntington.

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## ASSOCIATION OF AMERICAN MEDICAL COLLEGES.

*Fifteenth Annual Meeting, held at Chicago, April 10, 1905*

*(Concluded from page 1218 )*

### Uniformity of Curricula.

The committee on uniformity of curricula, George M Kober, W. J Means and Parks Ritchie, recommended as a standard curriculum to be adopted as a minimum for the degree of M.D., the following: 1. The course shall consist of four terms in four separate calendar years 2. Each term shall consist of at least thirty weeks of work, exclusive of holidays and of not less than thirty hours of college work in each week. 3 The entire course of four years shall consist of at least 4,000 hours, divided into the subjects as shown in table herewith, and no college shall be recognized that falls below this standard over 20 per cent. in any one branch, or over 10 per cent in the total.

STANDARD CURRICULUM.

| | | Number of Hours of Lectures in Entire Course. | Number of Hours of Laboratory. | Number of Hours of Clinics. | Total |
|---|---|---|---|---|---|
| 1 | Histology | 30 | 60 | | 90 |
| 2 | Embryology | 30 | 60 | | 90 |
| 3 | Osteology | 30 | | | 30 |
| 4. | Anatomy. | 190 | 230 | | 420 |
| 5. | " | 180 | 120 | | 300 |
| 6 | | 100 | 200 | | 300 |
| 7 | Materia Medica | 40 | 20 | | 60 |
| 8 | Pharmacology | 40 | 20 | | 60 |
| 9. | Therapeutics | 90 | | | 90 |
| 10. | Bacteriology | 40 | 100 | | 140 |
| 11. | Pathology | 100 | 140 | | 240 |
| 12. | Medical Zoology, Postmortem work and Clinical Microscopy | 30 | 60 | | 90 |
| 13 | Physical Diagnosis | 20 | | 80 | 100 |
| 14 | Practice of Medicine | 180 | | 360 | 540 |
| 15. | Surgery | 180 | | 360 | 540 |
| 16 | Obstetrics | 100 | | 60 | 160 |
| 17 | Gynecology | 50 | | 110 | 160 |
| 18. | Pediatrics | 40 | | 60 | 100 |
| 19 | Eye and Ear | 30 | | 30 | 60 |
| 20 | Nose and Throat | 30 | | 30 | 60 |
| 21 | Mental and Nervous Diseases | 60 | | 60 | 120 |
| 22. | Electro Therapeutics | 20 | | 40 | 60 |
| 23 | Genito Urinary Diseases | 30 | | 30 | 60 |
| 24. | Dermatology and Syphilis | 20 | | 20 | 40 |
| 25. | Hygiene and Public Health | 30 | | | 30 |
| 26 | Dietetics | 30 | | | 30 |
| 27. | Medical Jurisprudence | 30 | | | 30 |
| | | 1750 | 1010 | 1240 | 4000 |

The report was adopted, as amended, namely, that colleges be permitted to substitute laboratory and clinic hours for didactic hours.

### Discussion on Preliminary Education.

Prof. J. H. T. Main, dean of the faculty of Grinnell College, Iowa, discussed the question of the combined course, so far as it embraces the teaching by liberal arts colleges of subjects which are fundamental to medicine. He said the condition is the result, not of any design on the part of colleges of liberal arts, but of a natural and inevitable evolution due to the enormous enlargement of the field of knowledge which has taken place within the last fifteen or twenty years. The colleges which ten years ago offered fifty courses are now offering as many as 200 courses. This has been brought about by the so called elective system, which makes it necessary for a man to choose his work, and to enlarge on it in order to have the required number of hours. Naturally, he will keep in mind what he is going to do in life, and choose his subjects accordingly. This is necessary, because if the student does not do this, he is likely to be required to spend eight years at college, including the course in the medical college.

The time has come for a mutual understanding and agreement between the colleges of liberal arts and the medical colleges. The university has recognized this in its own territory and has provided for the combined course. The medical college has also recognized it in its own territory, and has conceded that it is a good thing for a man to shorten his course, if he can do so. There is a debatable ground between the college on the one hand, and the medical college on the other, that is, the independent college that has no medical school in connection with it. There is danger that the independent college will be forced out of existence between these two contending forces. Something must be done to equalize conditions Many courses are offered in colleges of liberal arts of direct bearing on medical education. The medical school requires these and teaches them. The colleges teach them, not because the medical school requires them, but because they are subjects in pure science and the college has a right to give them as a part of the liberal training. The man who takes these courses is entitled to consideration, not credit, but consideration; and the college in which he takes these courses is also entitled to consideration, no more or less. Can the college teach these subjects in such a way that they are entitled to consideration by the medical school? A number of universities are demonstrating the fact that it can be done. They are teaching these subjects with distinct reference to medicine, giving them in their department of liberal arts. It is the business of the medical school to regulate a condition that already exists so that it will not be injurious to the medical school or unjust to the college of liberal arts. This question should be made an educational question. There is no reason why the independent college should be excluded from the medical school or why it should be forced to stop teaching these pure sciences. The whole question rests on the quality of the work done. If the college gives a course in histology, or physiology or chemistry, or any other of the pure sciences fundamental to medicine that is worth credit, it should receive that credit. Let the medical school pass on the quality of the work. If it is not fit to be recognized, tell the college where it is short, and the work will be brought up to the standard.

The colleges do not ask for a flat credit for the A. B. degree at the present time. They merely ask that credit be given for this work. The value of the work can be determined by inspection. This association is competent to appoint a commission for the purpose of inspecting every state university and all colleges of repute for the purpose of determining whether colleges offering these courses are offering them in a way entitling the student to consideration in the medical college. That board might be composed of men in the medical college, or it might include men from colleges of liberal arts for the purpose of advice. That board might also formulate courses that could be offered in colleges of liberal arts and define definitely what should be the standard and the character of the teaching. No profession requires and demands as much liberal culture and careful technical training as does the medical profession, and it is worth while giving some consideration and some encouragement to the college that is anxious that the men coming to it should receive that training. It is a great injustice to the college of liberal arts that their graduates must enter the medical college on the same conditions as do the graduates of the high school.

**Dr. George W. Webster**, Chicago, said that the matter of preliminary entrance requirements is one that has been neglected more than any other. In many medical colleges to-day the entrance requirements are not as high as they were for the first medical college organized in the United States, that is, in proportion to the conditions existing. He agreed with Professor Main that men who have taken certain work in the university should be given credit for such work by the medical college, so far as it applies on the work of the first year of the medical course. It is not necessary to have the first two years of the medical course taught in great centers of population, but until a college teaches these preparatory studies, and gives a course both in time and quality that is equivalent to the work as given at present in the best medical colleges, credit should not be allowed.

**Prof. S. D. Williston** said that there must be co-relation between the subjects of pure science started in the college or university and the same subjects in the medical school. The medical profession should recognize such work. Students preparing themselves for the study of medicine should not be allowed to spend four years in desultory studies, but should be directed to the study of the pure sciences. The university has laboratories that are well equipped, and teachers who are competent to teach these pure sciences. It remains for the medical profession to say whether they will take advantage of these opportunities, and to say whether the student who has taken this work must take it again in the medical school. The medical profession will encourage advanced preparation by giving recognition to those colleges that teach these subjects and teach them well. This Association of Medical Colleges should occupy precisely the same position with reference to recognizing this work that university trustees occupy in recognizing the work of the high school. It is the duty of the association to examine the work done in liberal arts colleges, to lay down the requirements these colleges must meet, and when they do meet them, recommend that credit be given by the medical college for such work.

**Prof. A. W. Small**, Chicago, said that the universities are desirous of working with medical colleges, recognizing the exact value of things as they are. If the course in histology given in the college or university, where work is done on a thoroughly scientific basis, is well done, it is worth precisely as much and more under certain circumstances, as a part of medical education, as the same work done in the medical school. Students taking this work should be given credit for just what it is worth. If the work done in the college is the equivalent of the work done in the medical school, why should the student be asked to do it all over again? On the part of educators in general, two things are desirable; first, that the educational courses shall be arranged in such a way that there will be no artificial barriers for individuals going on as fast as possible in their chosen profession. Second, to induce persons to broaden the foundations of professional preparation by taking the pure sciences in the colleges where the equipment is ample and the work taught on a scientific basis.

## TENNESSEE STATE MEDICAL ASSOCIATION.

*Seventy-second Annual Meeting, held at Nashville, April 11-13, 1905.*

The President, Dr. Paul F. Eve, Nashville, in the Chair.

The association met in Watkins Hall. To the addresses of welcome by Mayor A. S. Williams and Dr. George H. Price, response was made by Dr. H. Berlin, Chattanooga.

### Officers.

The following officers were elected for the ensuing year: President, Dr. Cooper Holtzclaw, Chattanooga; vice-presidents, Drs. S. W. Woodyard, Greeneville; Alfred Moore, Memphis, and A. F. Richards, Sparta; secretary, Dr. George H. Price, Nashville; treasurer, Dr. W. C. Bilbro, Murfreesboro; delegates to American Medical Association, Drs. W. J. Miller, Johnson City, and W. D. Haggard, Nashville; *alternates*, Drs. G. O. Bicknell, Madisonville, and Louis LeRoy, Nashville.

Memphis was selected as the place for holding the next annual meeting, April 10-12, 1906.

### Food Adulteration in Tennessee.

**Mr. Lucius Brown**, Chemist, Nashville, in a paper on this subject, said that milk is peculiarly liable to sophistication on account of its perishable nature and the readiness with which it can be adulterated. This takes the form of watering, thereby reducing the quality, and the addition of preservatives to conceal or prevent decay. There is no form of food adulteration which is more despicable than this. Milk is the standard food of young children, and is largely used for invalids, and the addition to it of such materials which have a directly injurious effect on the digestion, and usually only takes down the danger signal without removing the danger, should be relentlessly and severely punished. An examination of pure-food legislation shows that twenty-two states have a regularly organized food-inspection department. It is significant that Kentucky has just increased its appropriation for this purpose from $7,500 to $10,500. For the proper enforcement of pure-food laws a qualified analytical chemist is an absolute necessity. Not less necessary is a wise and active pure-food commissioner. There need be, on the part of the retailer, no fear of a hardship being worked on him by a proper enforcement of food legislation. He is always given an opportunity to put himself right, if he desires to do so, under any food laws. But in order to reassure him, most states allow the retailer to be exempt from conviction if he produces a written guarantee from the wholesaler or his agent resident in the state.

### Early Diagnosis and Early Treatment of Otitis Media.

**Dr. N. C. Steele**, Chattanooga, said that a large number of adults are permanently deaf in one or both ears. Of every one thousand seriously deaf ears, perhaps in 999 the disease is otitis media, and every aurist knows that chronic otitis media is generally incurable. He pointed out the general management and treatment and closed by saying that the physician who looks carefully and intelligently after the patient's general health, as well as the local treatment, will have the greatest success in otitis media, just as he would in other local diseases.

### Tuberculosis Cutis.

Dr. J. M. King, Nashville, pointed out how the initial skin lesion is formed, and spoke of the differentiation of lupus from rosacea, eczema, and blastomycosis. Radiotherapy, Finsen light and violet rays are at present considered the most acceptable methods of treatment, and should always be used if the patient is within reach of it. The *x*-ray and Finsen light are both satisfactory, but the ideal instrument is the combined use of *x*-rays and Finsen light.

### Medical Ethics.

Dr. T. J. Happel, Trenton, regretted that most graduates leave medical colleges with a vague sort of idea that there used to be in the dim past a set of rules governing the relations of medical men to one another, to their patients, and to the public at large, but that because nothing has ever been said to them by their professors on this subject those rules have long since passed into innocuous desuetude. In many instances they soon become imbued with the idea set forth by a certain lecturer of the importance of "getting there," and that they lay down for their own guidance "get there" in any way one can, provided he does not violate the eleventh commandment. They follow their own golden rule as written and interpreted in these days of greed for gain—Do unto the other fellow as you would expect him to do unto you if he can, and do it first.

### Origin and Treatment of Malignant Growths.

Dr. Paul F. Eve, Nashville, selected this as the title of the president's address. He mentioned two varieties, one of the epithelial type of cells known as carcinoma; the other of the endothelial variety, or connective tissue cells, known as sarcoma. Both of these in many respects present clinical features very much alike. He referred to the theory that cancer is due to parasitic origin, but said he is very much more favorably impressed by the other theory which bases the origin of cancers on cell proliferation. Assuming that this disease is due to cell proliferation, if one can in any way check or change these cells, he has the promise of an ultimate success and recovery.

About two years ago he operated on a woman for scirrhous mamma, with involvement of the neighboring glands. A very complete operation was made, and every vestige of the disease removed, so far as could be discovered. Her recovery seemed complete in every respect, and he flattered himself that there would be no recurrence. Four months after the operation the woman returned with a reappearance of the disease in the scar tissue. A second operation was performed, which consisted of curetting the diseased structures. The patient was subjected to treatment with the *x*-ray for four weeks. At first improvement was noticed, but at the end of the third week the wound looked very unhealthy, and at the end of another week the patient returned to him, appealing for some means to save her life. The appearance of the ulcer was foul and fungous, and every indication pointed to general infection and a speedy death. He began to treat this wound with balsam of Peru, after first irrigating with bichlorid of mercury, 1-3,000. After the first few days the unpleasant odor ceased, and he was surprised to notice a decided change and granulations of a healing nature springing up in the wound. This treatment continued for five weeks, with an occasional touching up of the granulations with the solid stick of nitrate of silver. At the end of this time the wound was entirely healed, and the patient looked the picture of health. He had the pleasure of seeing this patient a short time ago. There was not the slightest evidence of any recurrence, and the woman was in excellent health.

Since this case he has had quite a number of other cases which have been treated in a similar manner. Improvement has been marked in every instance, and the ulcerations from the foul and fungous condition have assumed healthy granulations, healing occurring slowly but effectually. He cited two more cases.

*(To be continued.)*

## PHILADELPHIA COUNTY MEDICAL SOCIETY.

*Regular Meeting, held March 22, 1905.*

The President, Dr. James M. Anders, in the Chair.

## *SYMPOSIUM ON PNEUMONIA.*

### The Health of the City.

Dr. Thomas Darlington, commissioner of health of New York City, spoke of the pneumonia commission, saying that it would conduct its investigation along two main lines—clinical and bacteriological—and that information is especially desired on the following points: 1. The occurrence and virulence of the pneumococcus and organisms related to or resembling it, in the human mouth in health and disease. 2. The evidence and the extent of variations in virulence of the pneumococcus under different conditions. 3. The occurrence of the pneumococcus in children's hospitals, homes and asylums, and the bacteriology of the mouth before and after outbreaks of pneumonia. 4. The vitality of the pneumococcus under various conditions. 5. The value of mouth disinfection. 6. The bacteriology of the air of public places, conveyances and buildings, and private dwellings, especially in reference to its dust content. The public buildings to embrace stores, factories, large office buildings, public schools, theaters, hospitals, tenements and private houses. 7. The clinical evidence of the communicability of pneumonia as shown by the collection of cases in private houses and public institutions. 8. The seasonal relations of pneumonia. 9. The collection of statistics of pneumonia of the different varieties occurring in hospitals, special attention being paid to terminal pneumonia. 10. The collection of evidence as to the proportion of cases in which pneumonia can be regarded as an autoinfection, and the proportion of cases in which there is evidence of the communicability of the infectious agent. 11. The study of sporadic cases of pneumonia, special attention being given to relationships of the individual to crowds or to exposure to other cases of pneumonia, and the determination of the presence of the pneumococcus in the mouth in those cases and cases associated with them. 12. The evidence for the belief that pneumonia is infrequent in Arctic regions. 13. A statistical study of pneumonia, covering its prevalence in different latitudes and in different countries and cities, its yearly and seasonal variations and its types and mortality.

### Symptomatology and Diagnosis of Atypical Forms of Pneumonia.

Dr. J. C. Wilson pointed out that the application of the term pneumonia to two conditions clinically and pathologically essentially different, namely, bronchopneumonia and croupous pneumonia, has been the cause of misleading therapeutic conclusions, and has rendered many of the statistical data relating to the prevalence and death rate of croupous pneumonia absolutely worthless. Acute pneumonic phthisis, syphilitic pneumonia, inhalation or deglutition pneumonia, postoperative and anesthesia pneumonias, hyperstatic pneumonias and influenzal pneumonias, as well as the pneumonias of measles and pertussis, are not to be regarded as atypical forms of pneumonia, but are properly to be classed with bronchopneumonias. When the above cases are referred to their proper nosological position, there remains to be considered the great group of cases of croupous pneumonia. Dr. Wilson regards it as difficult to draw a sharp line between the typical and the atypical cases. It is generally agreed that the cases occurring in infancy, in old age and in drunkards are atypical, yet physicians have many times seen typical cases under these conditions. Nevertheless, the following forms are generally regarded as differing sufficiently widely from the type to deserve separate and special consideration: 1. Pneumonia in infants. 2. Pneumonia in the aged. 3. Pneumonia in the alcoholic—pneumonia potatorum. 4. Toxic, so-called typhoid pneumonia. 5. Epidemic pneumonia. 6. Larval pneumonia.

From the standpoint of the pulmonary lesion the following atypical forms are to be considered: 1. Upper lobe pneumonia, so-called apex pneumonia. 2. Pneumonia migrans. 3.

Central pneumonia. 4. Terminal pneumonia. 5 Pneumonia in pulmonary emphysema. 6. Hemorrhagic pneumonia.

The diagnosis of typical cases of croupous pneumonia is unattended with difficulty, errors arising much more frequently from carelessness than from ignorance. Too much importance, he believes, can not be attached to a systematic routine examination of the chest in all cases of acute disease beginning abruptly with chill followed by fever, or presenting pulmonary symptoms. The diagnosis becomes difficult in proportion as the departure from type becomes more marked. In the extreme forms of atypical pneumonia—the terminal pneumonias—the clinical diagnosis is very often impracticable. Herpes, which occurs in more than half the cases, is of diagnostic importance. The detection of the pneumococcus reinforces the clinical diagnosis. It can only rarely be utilized in diagnosis, except to this extent. Leucocytosis is an almost constant phenomenon. Its diagnostic importance is diminished by the fact that it also occurs in most of the conditions in which the question of differential diagnosis arises. Leucopenia is of most unfavorable prognostic significance.

### Medical Treatment of Pneumonia.

Dr. H. A. Hare agreed with Dr. Wilson that the statistics as to the mortality and as to the results of treatment in pneumonia are practically valueless, because different types of this disease are considered under the one heading of pneumonia, when in reality only the most careful differentiation of different types can give reliable statistics. Again, he says, much depends on the age of the patient and the time at which treatment is instituted. He advocated the use of moderate doses of digitalis and belladonna for a failing circulation and advised a more moderate employment of strychnin and the rare employment of nitroglycerin, except when definitely indicated. The subject of venesection, hypodermoclysis and intravenous injection was also considered.

### Etiology and Pathology of Pneumonia.

Dr. Warfield T. Longcope said that in spite of the extensive investigations on the pathogenesis of lobar pneumonia, bacteriologists and pathologists have added little which aids in the diagnosis, treatment or prevention of the disease. Until recently observers have not been able to produce lobar pneumonia experimentally in animals, but within the last year, Wadsworth has succeeded in producing the typical disease in rabbits by intratracheal injections of virulent pneumococci into animals which had previously been partially immunized. It is now generally conceded that in the vast majority of pneumonia, if not all, that pneumococci gain entrance into the circulating blood and set up a general infection. Tizzoni and Pacuchi have recently shown that pneumococci may circulate in the blood of immunized rabbits for weeks or months without perceptible harm to the animals. Resolution has been shown by Flexner to occur through autolysis of the exudate. Antipneumococcic serum, according to Rimpau and Neufeld, contains a substance which prepares pneumococci for phagocytosis.

### Surgical Complications of Pneumonia.

Dr. John H. Gibbon said that of the surgical complications of pneumonia, empyema is the most common, and that the success of the surgical treatment depends largely on early recognition. Confirmation of diagnosis is made by the exploring needle, which procedure should be carried out with as much care as any surgical opening of a clean healthy cavity. When pus is present, the procedure must be followed by thorough drainage. Dr. Gibbon uses chlorid of ethyl as an anesthetic, either alone, or as a precursor of ether. In practically every instance beyond the age of twenty, he would do a subperiosteal resection of the rib rather than simple drainage. Masses of lymph are removed by the fingers. There should be two drainage tubes as large as the finger, and they should be stitched in. The whole keynote of the treatment of empyema is the early and thorough evacuation of the pus, with the opening made as low down in the pleural cavity as possible. Another condition which is very common is lung abscess, due to foreign bodies lodged in the bronchi, to tuberculosis, or to pneumonia. Of the three varieties, that due to pneumonia gives the best results from surgical treatment. The diagnosis is attended with more difficulty than that of empyema. Drainage should be carried out exactly as in empyema. In the presence of adhesions between the lung and the chest wall either of two courses may be followed: The protection of the healthy pleural cavity by gauze packs and immediate drainage of the abscess; or the stitching of the lung to the parietal pleura, allowing the formation of adhesions before drainage.

### DISCUSSION.

Dr. John H. Musser called attention, first, to the cases simulating abdominal conditions. In deciding whether the condition is one of inflammation in the upper abdomen or an infection above the diaphragm, attention to a few of the classical phenomena attendant on each condition aid in diagnosis. Of the greater importance are the phenomena attendant on supra-diaphragmatic cases. Here the rusty expectoration or the expiratory grunt are the most valuable signs of pneumococcic infection of the lung; or, the pulse and respiration ratio. Examination of the blood does not aid, because in both conditions there is leucocytosis. In differentiating between pneumonia and meningitis, the presence or absence of the phenomena which attend meningitis is more helpful than pneumonic symptoms. The slow pulse and the rather slow respiration are indicative of meningeal trouble. In other instances violent hemorrhage at the onset of the disease suggests tuberculosis. The course of the disease offers more help than do the specific symptoms or laboratory signs. In still other instances delirium is so marked in the period of convalescence as to make the case atypical. This delirium, both in hospital and private patients, comes on immediately after the crisis and rages violently for from three to five days or two weeks, unattended by fever or undue change in pulse rate. The patients recover without any unusual cerebral complications. In no instances has he seen empyema follow as a complication. In one case there was abscess of the lung. It should be remembered that empyema does not always loculate at the base, the infection often being between the lobes. Dr. Musser thinks it a mistake to regard pneumococcic infection as a self-limiting disease. No one can tell how quickly the simplest case may become gravely toxic.

Dr. John B. Roberts said that the surgeon comes in contact with traumatic pneumonia, ether pneumonia, pneumonia due to cold from insufficient clothing (no-undershirt pneumonia) in patients in hospitals, croupous pneumonia, influenza pneumonia and septic pneumonia. It is often difficult to determine whether a given case is one of true croupous pneumonia or influenza pneumonia. He stated that in the incipient stage of inflammation of the lungs, prompt and efficient dry cupping should be used. He puts on half a dozen large tumblers, using small pieces of paper dipped in alcohol, to make the vacuum in the glasses. These are left on for half an hour or more, and are followed usually by turpentine stupes. In sthenic cases of pneumonia, and particularly in pneumonia following gunshot or stab wounds of the lung, or injury of the lung from fractured ribs, venesection is often of great value. He is confident that he has prevented congestion of the lung from becoming a pneumonia by efficient dry cupping; and that he has also prevented disastrous results from acute pneumonia following injuries of the lung by phlebotomy. In cases with a great deal of mucus in the bronchial tubes, he has seen life apparently saved by inverting the patient in order that gravity might act as a mechanical expectorant. The serous effusion in the pleura, which occurs as a complication of pneumonia, should be treated by prompt tapping. This may be done as well by the ordinary hydrocele trocar properly sterilized as with the complicated apparatus known as an aspirator. In empyema it is necessary promptly to evacuate the pus and lymph masses. This is easily done by putting the patient in the semi-recumbent posture, freezing the skin with ice and salt, and making a 2½-inch incision with a straight bistoury. It is never necessary to resect the rib in order to get room for evacuation and drainage; and it is better not to take the time for resection of the rib, when the patient is in a serious condition for which operation is done. If it is found, after a lapse of some weeks, that the lung does not expand and the chest wall does not sink in to close the cavity, resection may be done with much greater safety to the patient than at the time of the original incision. Many cases will never need the rib resected; and even in young children, not over a year old, it is easy to get a finger between the ribs and to insert a drainage tube. The incision should be made with a quick thrust of the knife, just as one would open an abscess elsewhere. The wound should then be expanded with two fingers to allow the pus to flow and the masses of lymph to escape. The latter may need to be hooked out with the finger tip. Two rubber drainage tubes placed side by side should be inserted and stitched to the skin to keep them from falling out of the wound; and each should have a safety pin in the outer end to avoid their being sucked into the chest, if the suture threads should cut through the skin unobserved by the physician. Abscess of the lung should be treated in a similar way by free incision and boring between the ribs with the finger to evacuate the pus. No resection of the rib is needed here. Irrigation is not needed in cases of empyema, unless the temperature should subsequently show that the cavity has become septic from putrefactive germs. Then it should be washed out once or twice a day with a weak antiseptic solution, or with sterile salt solution. The temperature curve indicates when the intervals between the irrigations may be lengthened.

Dr. James Tyson said that there is no single treatment which may be said to be curative, although there are measures which co-operate with whatever tendency nature has in the way of self-immunization or in the way of elimination. He does not believe, however, that treatment is without effect and to be ignored. He emphasized the early and prompt use of dry cups, after the manner described by Dr. Roberts, and repeated for a number of days. Certain cases are favorably influenced by the application of the ice bag to the inflamed lung. Where this method has seemed to be lacking in efficiency, he thinks it is due to the imperfect method of application. The best application of cold is by cloths rung out of ice-cold water and kept in place until they become warm. The ice-cloths induce deep inspiration, which is an added advantage. They also reduce temperature. When the temperature drops to a hundred, he has the ice-cloths removed to be reapplied, if the temperature goes above this point. He has found good results to follow the use of creosol, in ten-minim does, every four hours. This drug is less irritating than creosote and less dangerous of application. He believes the diagnosis of abscess of the lungs to be more difficult than Dr. Gibbon finds it. Dr. Tyson believes that cases of pneumonia associated with delirium are less apt to be fatal in their termination, although one would naturally think that delirium is an index of the severity of the toxin.

Dr. Judson Daland mentioned dilatation of the right ventricle as an important complication of croupous pneumonia. The use of venesection he finds of special importance. In no condition of the blood with which he is familiar is coagulability of the blood greater than in some of these cases of croupous pneumonia. In this class of cases the use of alkaline water in large amounts, to reduce the acidity of the urine, is important. Certain cardiac stimulants are also valuable.

Dr. Frank Woodbury thinks that possibly the upper air tract may occasionally be a source of entrance for the pneumococcus, though occasionally entrance is through the bronchial mucous membrane. He suggested the possibility that abnormal conditions of the nasal mucosa may afford entrance for the pneumococcus and that the entrance into the blood from the upper air passages may give some of the atypical forms referred to by Dr. Wilson.

Dr. James M. Anders said that attention should be directed to the limitation of the area of consolidation, to the assistance of nature in the elimination of toxins, and to the meeting of indications as they arise. He agreed with Dr. Musser that water is given too sparingly in pneumonia, and not sufficiently systematically. He emphasized especially the support and maintenance of the heart circulation. An important question is the decision of just when to aid the heart and with what agents; whether to wait until the pulse tension begins to fall off and the first sound of the heart becomes weak, or to give this aid before that period arrives. In Dr. Anders' experience, after an attack of heart failure in pneumonia, toxemia increases and death almost invariably is the result. On the other hand, when he has given cardiac tonics and stimulants sufficiently early, failing circulation has been warded off. Strychnia is the best agent for this purpose. Nitroglycerin is another valuable remedy. He believes that the pneumococcus often makes its entrance through the upper air passages.

Dr. Githens referred to his experimental work in the injection of adrenalin chlorid into animals. The chlorid causes punctate hemorrhages throughout the lungs, and, if the dose is too large, death is caused promptly by pulmonary edema. A similar effect in man may account for some of the bad results found in pneumonia.

Dr. Darlington emphasized the value of the drinking of water in pneumonia. He had lobar pneumonia himself ten years ago, with six others, all of whom died. The other men had been accustomed to a different kind of drink, and it was impossible to get water into them. Dr. Darlington had taken water in great quantities in the course of the disease, and considered himself a monument to the value of the drinking of water in pneumonia. He gives quinin in large doses, and the result of the remedy, in his opinion, depends on the particular epidemic. Last year pneumonia was very fatal; this year the mortality was less. In reference to heart stimulants, Dr. Darlington observed that if the heart commences to fail, it will go on to failure, irrespective of the giving of a stimulant.

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## OMAHA (DOUGLAS COUNTY) MEDICAL SOCIETY.

*Regular Meeting, held March 28, 1905.*

### Carlsbad.

Dr. A. F. Jonas spoke of his personal experience as a patient, suffering from biliary calculi, requiring two operations. At the first operation the gall bladder was found to be practically filled by a stone. Recovery was prompt and he was at work again in about a month. In June, 1904, he again suffered from very severe pain, icterus and the most intolerable itching. He was operated on again and a small movable stone was found in the common duct. Recovery was very slow and tedious. The discharge of bile was ropy, touch and tenacious. The severity of the symptoms varied with the tenaciousness of the bile discharge. Pain recurred about two months after the second operation.

He therefore decided to go to Carlsbad. On the ocean trip he suffered no pain. On landing, the pain, jaundice and itching returned. The stools remained clay-colored. After a week's treatment at Carlsbad there appeared a terrific new pain. A grain and a half of morphin within a half-hour was ineffective. Ironing the abdomen with a rubber bottle filled with boiling water checked the pain. From this time he had suffered no further pain.

He was very greatly impressed with the method adopted by his physician. Directions for treatment had been written out very carefully and minutely. Beer and wine were absolutely prohibited. The hours when he was to drink the waters, the spring from which he was to drink and the quantity permitted were named. Hours were assigned for rest, for walking and for sleep. Minute directions were given as to the food permitted and forbidden. The Carlsbad waters have a very decided effect on the flow of bile. The stools became mahogany-brown after two or three days' use of the water, and remained so, with slight variation. He had been ordered to use the water from the cooler springs at first and had been told just when to change to the water of higher temperature. At the close of his stay of five weeks he was using a water of 163 degrees.

A stone in the bile passages is not the sole cause of pain and biliary colic. The irritability caused by the abnormal character of the secretions is sometimes a source of further pain, even after removal of a stone. Drainage does not always cure the infection. No greater mistake can be made by physicians than to send their patients to Carlsbad or any other springs with the general instructions to go there and drink the waters. Every patient should be placed under the care of a competent local physician. The best of the profession at Carlsbad find it necessary to have many of their patients subjected to operation for gallstones, and they agree that the waters have no value in the direction of dissolving any form of gallstone.

The season is from May to November. Carlsbad is one of the great resorts for pleasure as well as cure during the season, and about 110,000 guests go there each summer. The springs were all owned by the municipality. All guests who remain eight days are required to register and are called cure-guests. They have to pay a cure tax varying from 4 crowns to 20 crowns (of 20 cents each) for the season. Each one also pays a music tax of a smaller sum. These taxes maintain the beautiful permanent establishments, the band and the various parks. In former days the deposits from the waters of the springs would close the aperture and force the spring to seek another outlet. They have now learned to use an auger and bore out the spring once or twice a year, thus keeping it in a permanent locality. May 1 of each year the springs are all formally consecrated by church authority. A splendid band of sixty pieces furnishes music during the day. The physicians of Carlsbad are of all ranks and grades and are all private, employed there as in any other city. Hotel rates are not extortionate.

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## CHICAGO NEUROLOGICAL AND CHICAGO MEDICAL SOCIETIES.

*Joint Meeting, held March 29, 1905.*

Dr. Harold N. Moyer, president of the Chicago Neurological Society, in the Chair.

### Symptoms and Treatment of Exophthalmic Goiter.

L. F. Barker said that while the nature of the affection is not yet wholly clear, great strides have been made toward an understanding of it. The theory that a disturbance of the thyroid gland is responsible for the symptoms of the disease is now the dominant one, and there are some points difficult to reconcile with any of the theories yet propounded. As regards the etiology, it is known that the disease occurs nearly five times as frequently in the female as in the male; that it is commonest in early life, and especially in the third decade; that it has a tendency to appear in the so-called neuropathic families; that many cases of the disease may occur in one family; that it often develops after emotional shock or prolonged emotional disturbance; that occasionally it appears as a sequel of some infectious process; and, finally, that climatic and terrestrial conditions play no important rôle in its causation, though it would appear that it is rather more common in districts where ordinary goiter is prevalent.

As the cardinal symptoms of the disease are usually described, we have the tetrad—tachycardia, goiter, exophthalmos, and tremor. In well-marked cases all these symptoms may be present, but in undoubted instances of the disease, one, two, or even three of them may be absent. Aside from the thyroid gland, it is the circulatory system, the nervous system, the eyes and the skin, the functions of which are especially disordered, though there are also evidences of disturbed activity in still other parts of the body. These circulatory disturbances were pointed out and discussed at considerable length. Perhaps the most important nervous symptom is the tremor. It has been carefully studied by Marie and is now regarded as a very constant phenomenon, though it undergoes marked variation in degree and continuousness. The eye symptoms of the disease are among the most characteristic. On the part of the skin, increased sweating is the most important symptom. Diarrhea is not infrequently a troublesome symptom. Four principal theories of the disease have been advanced: 1, That it is due to disease of the sympathetic nervous system; 2, that the seat of the malady is in the medulla oblongata; 3, that it is primarily a disease of the thyroid gland, and 4, that it is a neurosis.

Modern therapeutic measures have been largely based on the thyroid theory. The results of partial strumectomy indicate that the successful removal of a portion of the thyroid gland can lead to pure or to definite amelioration of the condition. On the theory that the thyroid secretion normally neutralizes certain general metabolic poisons in the body, Moebius and others conceived of treating cases of exophthalmic goiter in which there is presumably an excess of thyroid secretion in the body, by introducing subcutaneously or by the mouth the *serum of thyroidectomized animals*. It was hoped that the non-neutralized general metabolic poisons of such animals would nullify the toxic effect of the excessive thyroid secretion. As to treatment, experience has shown the great importance of general measures; complete rest for a time, fresh air, careful diet, mild balneotherapy, etc. The speaker personally favors rest, isolation and systematic psychotherapy as a routine treatment. In cases which do not respond to this or to antithyroid therapy, operation may be considered, but if it is to be done, it should be undertaken before marked cachexia develops, and before the heart is too seriously diseased.

### The Larvated Forms of Exophthalmic Goiter.

Dr. L. Harrison Mettler said that a typical case must reveal tachycardia, struma, and exophthalmos. When combined or single, these symptoms will answer for the making of the diagnosis, if they are sufficiently pronounced, for their characteristics are such that they are not likely to be mistaken for similar phenomena in other diseases. The same may be said of tremor, but with less positiveness. There is a large class of cases in which tachycardia, with general nervousness, tremor, and possibly slight evanescent struma or exophthalmos occur. The heart irregularity comes on suddenly after a severe strain or sudden shock, mostly in a woman with hysterical tendencies, or with a neuropathic ancestry. It exhibits the typical traits of the Basedow tachycardia, such as the persistent elevation of the pulse beat, the peculiar thrill. With it is a general nervousness and possibly a number of symptoms, such as a mild psychosis, hyperidrosis, vertigo, aboulia, weakness, and even some general emaciation. These cases are not infrequently mistaken for simple neurasthenia, tuberculosis, and other affections. They are undoubtedly instances of the disease, but are masked and ill-defined. If they get well, with or without treatment, they remain as examples of the larvated forms; if they go on and in months or years ultimately develop all of the cardinal signs, they enter the class of typical but delayed cases. Their etiology is obscure; their symptomatology includes any of the more or less indefinite manifestations commonly recognized in neurasthenic and hysterical states, plus one of the cardinal symptoms of the disease, which cardinal symptom is usually the characteristic tachycardia. Their prognosis is uncertain, though generally it is good. Their course is brief and intermittent, and their treatment is simple and highly satisfactory. Caution is necessary in regard to hastily attributing the recovery of these cases to any specific mode of treatment, for as they so often recover with no other treatment but physical rest and mental quietude, any hasty conclusion as to the efficacy of this or that medicament may be the result of a mere *post hoc reasoning*.

### Ocular Symptoms of Exophthalmic Goiter.

Dr. Henry Gradle stated that in well-marked cases the patient had a wild, staring look, amounting to even an expression of terror. This is caused by protrusion of the eyeballs, together with retraction of the upper eyelid, whereby some of the sclera is exposed to view above the cornea. The widening of the lid aperture is peculiar to this disease. The exophthalmos varies in degree. These variations were pointed out. One-sided exophthalmos is not very rare. The diagnosis is occasionally certain, even without exophthalmos, or the latter may develop after the other cardinal symptoms have existed for a while. Conversely, protrusion of the eyes or even of one eye only, when accompanied by the characteristic retraction of the upper lid, justifies the diagnosis of incipient or incomplete exophthalmic goiter, even though goiter and heart symptoms be absent. The retraction of the upper lid exposing the sclera to an abnormal extent is, perhaps, more characteristic of the disease than mere protrusion of the eye. Pigmentation of the skin, resembling the bronze color of Addison's disease, has been noted on various areas of the body and also around the eyes. Jellinek referred to the diffuse brown coloring of the skin of the eyelid, the upper more than the lower, as an early, though not constant and sometimes evanescent, symptom in exophthalmic goiter. Moebius has observed insufficiency of the converging power of the eyes as a fairly frequent occurrence. Pulsation of the arteries of the retina has been described by Becker as common. The protrusion of the eyeball is partly due to increased vascularity of the organ; it always diminishes after death. In some autopsies, the eyeballs, prominent in life, were even found receded to normal position, and no anomalies were observed in the orbit. In other postmortem records, the exophthalmos was explained by the increased amount of fat found within the orbit. The ocular muscles were infiltrated with fat and the optic nerves were elongated. When recovery occurs, either spontaneously or under treatment, the eye symptoms can disappear completely. There is a single case on record of the occurrence of conical cornea. The causative relation of the latter to the stretching and deformity of the cornea was suggested by Dor by the unusual improvement of the kerato-conus in both eyes, only one of which had been operated on, when the patient recovered from the goiter under the administration of thymus. Gradle recently saw a similar coincidence of these two obscure conditions—exophthalmic goiter and conical cornea.

### The Serum Treatment of Exophthalmic Goiter.

Dr. Harold N. Moyer said that if the disease is the result of a too abundant or an excessively toxic secretion of the thyroid gland, the only rational form of therapy consists either in checking the secretion or else in neutralizing the toxic products thrown into the blood stream. The first of these alternatives was beyond our control, but as the thyroid secretion is normally neutralized by certain anti-bodies present in the blood, the serum or blood of animals from which the thyroid gland had been removed, and in which these anti-bodies had been allowed to accumulate for some time, should prove capable of neutralizing the excessive or perverted secretions causing the disease. The first experiments along these lines were undertaken independently of each other by Ballet and Enriquez, in Paris, and Lanz, in Amsterdam. The former used serum, the latter the milk of thyroidectomized animals. The results obtained by either method were very encouraging. Further experiments were conducted by Burghardt, Schultes, Goebel, Moebius, and others. The same properties which were found in the blood and serum proved to be present also, although in not as great a concentration, in the milk of these animals. The latter was preferred by some experimenters, because it proved less expensive than the pure sera.

Thyroidectin is derived from the blood of thyroidectomized animals. In the preparation of the capsules not only the serum but the entire blood has been utilized. It forms a reddish-brown powder, readily soluble, non-toxic, unirritating to and rapidly absorbed from the stomach. It is put up in five-grain capsules, of which one or two are administered three times a day, according to the needs of the individual case.

### Personal Experience with the Serum Treatment of Exophthalmic Goiter.

Dr. Sydney Kuh reported 11 cases of exophthalmic goiter treated with the serum of a thyroidectomized animal. He believes that he is justified in saying that it is an excellent palliative. Among the 11 cases there was one in which the effect of the treatment was temporary only, and another one in which there was no effect at all. One thing was very striking, and that was the marked and rapid improvement in the subjective condition of most of the patients. Within a few days after taking the first dose of the serum they would report a change for the better. The remedy influences the pulse as much as anything that is employed in the treatment of tachycardia in exophthalmic goiter. It increases the appetite and decreases nervousness. It has a pronounced tendency to increase the weight. Theoretically, it seems hardly probable that the results from the serum should be permanent. One may expect that after some time a smaller dose may suffice, and that an intermittent treatment only may be required. In the first case reported, the patient has been without serum for quite a long period—two and a half years—and has remained in excellent health all that time, but the author thinks it is doubtful whether she will remain in that condition unless she occasionally takes a few doses of the serum.

### Cases of Exophthalmic Goiter.

Dr. Charles L. Mix reported two severe cases of exophthalmic goiter treated by the serum. In one, the patient's pulse ranged from 120 to 140. Since taking the serum she has gained forty pounds in weight, and her pulse ranges in the nineties at present. She is able to work for her living. In addition to the improvement in tachycardia, the gain in weight and in strength, the doing away of myasthenia, there is a very pronounced effect in the condition of the thyroid gland, the neck has diminished materially in size, and the heart also has decreased in size materially.

The second case was a much more pronounced one. The patient had been seen by four eminent Chicago physicians, who gave her no hope. Her heart was giving way; edema was rapidly appearing; there was marked ascites; girth of the navel was 37 inches; pulse ranged between 140 and 150; neck measured 14½ inches in circumference. She was 20 pounds under weight, but after the disappearance of the ascites she gained twenty pounds. The patient took serum in doses of 2 c.c., three times a day, which was afterwards reduced to 1 c.c., three times a day, and then the serum was abandoned altogether, and dry serum given. The serum from a thyroidectomized horse was then injected, and patient grew worse. She took goat serum, and after taking it during the winter she gained twenty pounds in weight; pulse at present is about 111.

He believes there is a neutralization point in these cases. He noticed that if he gave too large doses hypodermically, the patient would have marked symptoms of cardiac failure, resembling those of angina pectoris, associated with pain in the arm. The danger of collapse was so great on one occasion that stimulants had to be given. After the dose had been decreased the patient got along better. On the other hand, he thinks that one can give too little of the serum. In the case with ascites he reduced the dose to ten grains a day, but this was too little, as the patient began to get worse again. She was able to take fifteen grains daily, without any particular difficulty, and he presumes in the course of time it will be possible to reduce that still further. It seems to him that the serum treatment affords very great possibilities.

## Therapeutics

[It is the aim of this department to aid the general practitioner by giving practical prescriptions and, in brief, methods of treatment for the diseases seen especially in every-day practice. Proper inquiries concerning general formulae and outlines of treatment are answered in these columns.]

### Acute Prostatitis.

The causes of acute prostatitis, according to the *Cyclopedia of Med. and Surgery*, are exposure to cold and wet, traumatism to perineum, injury from instruments, calculus, foreign bodies and, most frequent of all etiologic factors, specific urethritis.

The symptoms most frequently complained of are a sensation of heat and weight to the perineum and in the rectum, frequent micturition associated with temperature of from 100 to 103 F.

The treatment consists in absolute rest, and that position which favors emptying the part of blood as much as possible, which consists of rest in bed with the hips elevated. The local application of leeches to the perineum is of service in reducing the local congested condition of the blood vessels. Hot sitz baths or hot fomentations applied locally will assist in relieving this congestion by withdrawing the blood from the deeper parts. If there is marked vesical irritation the following combination is recommended:

| | | | |
|---|---|---|---|
| R. Acidi boracici | | | |
| Sodii bromidi, āā | ʒiiss | 10 | |
| Tinct. belladonnæ | ʒss | 2 | |
| Liq. potassii citratis, q. s. ad | ℥viii | 240 | |

M. Sig.: One teaspoonful every three hours.

the temperature is high the following combination is vised:

| | | | |
|---|---|---|---|
| R. Acidi boracici | | | |
| Potassii bromidi, āā | ʒi | 4 | |
| Pot. citratis | ʒii | 8 | |
| Tinct. aconiti | m. xxiv | 1 | 65 |
| Tinct. belladonnæ | ʒss | 2 | |
| Spts. etheris nitrosi | ℥ss | 15 | |
| Aquæ q. s. ad | ℥vi | 180 | |

M. Sig.: One tablespoonful every three hours.

Morphin may be resorted to if the foregoing does not afford relief after a reasonable length of time, given in the form of a suppository, and may be combined as follows:

| | | | |
|---|---|---|---|
| R. Ext. hyoscyami | gr. i | | 06 |
| Morph. sulph | gr. ¼ | | 015 |

M. Ft. suppos. No. i. Sig.: One such suppository once or twice daily. Or:

| | | | |
|---|---|---|---|
| R. Ext. belladonnæ | gr. iii | | 09 |
| Ext. opii aqueous | gr. vi | | 40 |
| Ol. theobromæ q. s. | | | |

M. Ft. suppos. No. xii. Sig.: One to be introduced into the rectum two or three times daily.

Straining at stool or during micturition should be avoided in order to avoid local congestion, and if the patient is unable to pass the urine naturally, it must be withdrawn by means of a catheter. The elimination by the bowels must be carefully regulated, and the diet must consist principally of milk. All stimulants should be avoided unless other conditions demand them.

### Asthma.

Brodie and Dixon, in the *International Med. Annual*, have shown that asthma is due to spasm of the muscular walls of the finer bronchioles through the fibers of the vagus. Irritation of the nerve endings was found to be annulled by atropin. Lobelia produced transitory dilatation of the spasm and if the spasm was produced by nasal irritation cocain would check it. The constant current through the neck is supposed to act by preventing the conductibility through the vagus from the nerve endings, therefore relieving the spasm.

Good results have been reported from the use of atropin hypodermically, and Bass of Philadelphia reports cures by injections of five drops (.30) of a 2½ per cent. solution of silver nitrate into the neck over the vagus nerve. As to the cauterization of the septum which has been highly praised by some authorities, the general opinion prevails that if the asthmatic attack is relieved by the application of cocain to the nasal mucous membrane, then the patient can be informed that the cauterization can be done with beneficial results, but without general treatment relapses will occur, and this form of treatment can not be advised as a panacea in every case of asthma.

One of the most efficient remedies for the immediate relie of an asthmatic attack is the hypodermic administration o morphin valerianate in quarter-grain doses (.015). This form of morphin is recommended as preferable to the sulphate, because it is said to be a much more active spasmodic. Ammonium valerianate is also recommended, or the ar c spirit of ammonia. Arsenic, belladonna, eucalyptus ia a other remedies mentioned by him. He advises ple easily digested but nutritious diet, avoiding a soned dishes and rich desserts. Alcoholic stin be used very sparingly; the patient should dress have plenty of gentle exercise and plenty of sleep, with residence in a dry, warm, equable climate.

The following combination containing the three bromids is frequently sufficient to stop the attack:

| | | | |
|---|---|---|---|
| R. Sodii bromidi | | | |
| Potassii bromidi | | | |
| Ammon. bromidi, āā | gr. v | | 30 |
| Aquæ feniculi | ʒii | 8 | |

M. Sig.: To be taken at one dose and repeated every half-hour until relief is obtained.

In the treatment of asthma Shoemaker recommends the following combination containing lobelia:

| | | | |
|---|---|---|---|
| R. Tinct. lobeliæ | ℥i | 30 | |
| Tinct. hyoscyami | ℥ss | 15 | |
| Aquæ camphoræ | | | |
| Spts. etheris nitrosi, āā | ℥i | 30 | |
| Syr. pruni vig | ℥ss | 15 | |

M. Sig.: One teaspoonful in water every half-hour or hour until relieved. Or:

| | | | |
|---|---|---|---|
| R. Aceti lobeliæ | ʒss | 2 | |
| Sodii bromidi | ʒv | 20 | |
| Syr. ipecacuanhæ | ʒiv | 15 | |
| Glycerini | ℥iv | 120 | |

M. Sig.: Two teaspoonfuls every one or two hours. Or:

| | | | |
|---|---|---|---|
| R. Acetanilidi | ʒi | 4 | |
| Tinct. lobeliæ | ʒii | 8 | |
| Syr. eriodictyi arom. q. s. ad | ℥iii | 90 | |

M. Sig.: Take one teaspoonful every fifteen minutes during the attack of asthma until relieved.

The extract of quebracho is sometimes recommended, combined as follows:

| | | | |
|---|---|---|---|
| R. Ext. quebracho | ʒi | 4 | |
| Morph. hydrochlor | gr. ss | | 03 |
| Syr. simplicis | ʒv | 20 | |
| Aquæ melissæ q. s. ad | ℥iv | 120 | |

M. Sig.: One tablespoonful every two or three hours.

Or the following, containing potassium iodid, may be of value:

| | | | |
|---|---|---|---|
| R. Potass. iodidi | ʒii | 8 | |
| Liq. potassii arsenitis | ʒi | 4 | |
| Vini ipecacuanhæ | ʒiv | 15 | |
| Tinct. hyoscyami | ʒiv | 15 | |
| Aquæ chloroformi q. s. ad | ℥viii | 240 | |

M. Sig.: One tablespoonful three times a day, in water, after meals. Or:

| | | | |
|---|---|---|---|
| R. Chloralis hydratis | | | |
| Potassii iodidi, āā | gr. xxiv | 2 | 65 |
| Syr. simplicis | ℥ss | 15 | |
| Aquæ | ℥iv | 120 | |

M. Sig.: Two tablespoonfuls every three hours in water.

Bartholow recommends the following containing lobelia:

| | | | |
|---|---|---|---|
| R. Tinct. lobeliæ | ℥i | 30 | |
| Ammon. iodidi | ʒii | 8 | |
| Ammon. bromidi | ʒiii | 12 | |
| Syr. tolutani | ℥ii | 60 | |

M. Sig.: One teaspoonful every one, two, three or four hours, as indicated. Or:

| | | | |
|---|---|---|---|
| R. Fld. ext. grindeliæ robusta | ʒii | 8 | |
| Ext. lobeliæ fluidi | ʒi | 4 | |
| Ext. belladonnæ fld | ʒss | 2 | |
| Potass. iodidi | ʒiss | 6 | |
| Glycerini | ℥iss | 45 | |

M. Sig One teas l in water and repeat in four hor

### Her hingles).

of lint, or of antiseptic cotton, with its meshes full of the powder, should be laid and held in place by a bandage. In the milder cases this treatment will suffice. In other cases, in which rupture has taken place and their bases have undergone erosion or ulceration, oleated lime water with zinc oxid, belladonna and opium should be applied.

The following lotions are valuable in such cases:

℞. Lotio plumbi et opii..................℥iii 90|
Sig.: Apply locally. Or:
℞. Zinci carb. precip.
Pulv. zinci oxidi
Pulv. amyli
Glycerini, āā..........................℥ss 15|
Aquæ ..............................℥viii 240|
M. Ft. lotio. Sig.: To be applied locally.

The diachylon ointment should not be employed in the treatment of this condition, as may be said in general of other ointments. However, the author recommends the following to relieve the pain in some cases:

℞. Ext. opii aq....................gr. x-xx |65-1.30
Lanolini ..............................℥i 30|
M. Ft. unguentum. Sig.: Apply locally. Or:
℞. Ext. belladonnæ ................gr. x-xx |65-1.20
Lanolini ..............................℥i 30|
M. Ft. unguentum. Sig.: To be applied locally. Or:
℞. Cocainæ hydrochlor................gr. xx 1|30
Menthol ..........................gr. x |65
Lanolini ..............................℥i 30|
M. Ft. unguentum. Sig.: To be applied locally.

### Pulmonary Emphysema.

The following combinations are recommended in cases of pulmonary emphysema:

℞. Potass. iodidi ..........................ʒi 4|
Tinct. hyoscyami ......................ʒiii 12|
Elix. calisayæ q. s. ad..................℥ii 60|
M. Sig.: One teaspoonful every three hours in water or milk. Or:
℞. Potass. iodidi ..........................ʒss 2|
Tinct. belladonnæ .. ....................ʒss 2|
Spts. etheris comp.......................℥ss 15|
Aquæ q. s. ad..........................℥iii 90|
M. Sig.: One tablespoonful three times daily in water.

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## *Medicolegal*

**Remedy Is Action Against Members of Board.**—The Supreme Court of Rhode Island says, in the case of Maud A. E. Kenney vs. State Board of Dentistry, where a writ of mandamus was asked for to compel the issuance of a license to the petitioner to practice dentistry, that as to the allegation to the effect that the board was prejudiced against the petitioner, and had not given her a fair and impartial examination, it was sufficient to reply that this court could take no notice of such a charge in a proceeding of this sort. If she was rejected because of improper motives on the part of the board, her remedy was by an action for damages against the individual members thereof, alleging bad faith, and arbitrary disregard of their duties, or improper animus against the applicant, or other malversation in their discharge of duty, but not by mandamus. The court also says that whatever the purpose of the section of the statute requiring the board to keep the examination papers on file for two years might be, it was too clear for argument that such a provision had nothing whatsoever to do with regard to giving jurisdiction to this court to review the findings of the board. In short, jurisdiction in a case of this sort does not depend on the manner in which the board has discharged its duties in matters where it is called on to exercise judgment and discretion, but it depends on whether there has been an absolute refusal to perform either a ministerial or a judicial duty.

**Law Against Owning or Managing Office Unconstitutional.**—The Supreme Court of Washington holds, in the case of State vs. Brown, of considerable importance, in principle, to the medical profession, that the police power of the state does not authorize the enactment of a statute requiring examination by and license from a dental board before one may "own, run, or manage" a dental office. It says that it is solicitude for the physical well-being of the public, or that portion that may need dentistry work, which justifies that part of the statute providing for the examination and licensing of those who desire to "treat diseases or lesions of the human teeth or jaws, or to correct malpositions thereof." To perform such work with safety and with proper regard for health and comfort, the operator must possess technical knowledge and skill peculiar to the study and practice of dentistry. Can the same be said of one desiring to own, run, or manage a dental office? The court thinks not. To own and run property, it says, is a natural right, and one which may be restricted only for reasons of public policy, clearly discernible. To hold this portion of the statute valid would be to make possible conditions which were never designed to exist. To illustrate: Suppose a man thoroughly qualified and legally licensed as a dentist should die, leaving a perfectly and completely equipped dental office to his widow, who knew nothing of dentistry and was incapable of securing a license. By continuing to own this property any appreciable time she would become liable to prosecution under this part of the statute. Can the police or any other power be constitutionally invoked to produce such a result? The court is led to believe not. Carry the illustration a little further: The widow, not being able to sell the dental office to advantage, decides to hire competent and legally licensed dentists to treat patrons of the office, and undertakes the management herself—paying bills, collecting accounts, arranging credits, making appointments, and doing other acts necessary to the supervision and control of the business affairs of the concern. Then she becomes a criminal, if this portion of the statute have virtue, because she has managed a dental office. And yet it will scarcely be contended that any of these acts injuriously affect "the health, good order, morals, peace, or safety" of society, or menace "the lives, limbs, health, comfort, quiet, or property" of the patients treated in such office. Many similar illustrations will readily occur to the mind given to the contemplation of the natural results reasonably to be anticipated under the operation of such a statute. Should the owner or manager hire operators not legally qualified, or should they participate in the treatment or operations mentioned in the other portion of the statute, they would, of course, be amenable to and punishable under those provisions. But the court is unable to say or to perceive that the health, moral, or physical welfare of the public, or any of the personal or property rights of its individuals, are endangered by the ownership and management of a dental office, so long as those employed therein to do the actual dentistry work are qualified and licensed as by law required.

**Burden of Proof and Presumed Continuance of Insanity.**—The Supreme Court of Ohio says, in the case of State vs. Austin, that it must now be taken as the well-established rule of law in that state that in a criminal case when the insanity of the defendant is pleaded or relied on as a defense, such defense is affirmative in character, and the burden of maintaining or establishing the same by preponderance of the evidence rests with the defendant. The authorities would seem also to be in entire accord on the proposition that where a person is indicted and prosecuted for the commission of a crime, in order to make the insanity of the accused available and effective to him as a defense, such insanity must be shown to exist at the very time of the commission of the act complained of. The law requires that the insanity proved, in order that it may be defensive shall relate to the time of the commission of the alleged criminal act, and proof of the insanity of the defendant at a time prior thereto cannot of itself exempt him from punishment or acquit him of criminal responsibility. While it is entirely competent in a criminal case, where the sanity of the accused is put in issue, to show his mental condition both before and after the time of the commission of the alleged criminal act, yet from such evidence of his previous or subsequent mental condition no legal presumption arises that he was insane at the time he committed the criminal act, and such evidence is proper for the consideration of the jury only in so far as it reflects or throws light on, or may aid the jury in determining, the question of whether in fact the insanity of the defendant existed at the time of the alleged criminal act. It appeared from the record in this case that the defendant, who was accused of having committed a homicide in August, 1903, had been adjudged insane and, in June, 1900, was committed to a state hospital for the insane, from which he was discharged September 1, 1900. He was afterwards readmitted to the same institution July 29, 1901, and discharged therefrom as restored on December 21, 1901. The nature of his disease or malady was, as testified by the physicians, that of "recurrent insanity or recurrent mania, with suicidal and homicidal tendencies." The court holds that the following instruction was properly refused: "Proof of prior insanity throws on the state the burden of proving the crime perpetrated during a lucid interval. It defeats the legal presumption of sanity and creates a legal presumption of continued lunacy." The court says that the particular vice of this instruction was that it stated the rule too broadly. It is doubtless true that insanity is often chronic and permanent; for instance, from senile dementia and congenital idiocy there can be, as a rule, no recovery; and, where insanity in such form is often proven to exist, its continuance may be inferred or presumed, such inference or presumption, however, being one of fact and not of law. There are, perhaps, but few other forms of insanity of which recovery may not be predicated, at least as a contingency, and as to these no presumption whatever is indulged or recognized that they are continuing in their nature. Therefore, the burden being on the defendant to show that he was insane at the time of the commission of the particular act charged, proof of mere temporary or recurrent insanity, such as was shown in this case, at a time prior thereto, was clearly not sufficient to rebut or to overcome the legal presumption of his sanity, and to impose on the state the burden of proving that at the time the act was committed the defendant was then sane. The burden of proof does not shift, but all along it rests with the defendant, and, if in any case he would overcome the legal presumption of his sanity and would exonerate himself from liability, he must show by a preponderance of the evidence that at the time of the commission of the alleged criminal act he was then so far mentally deranged or unsound as not to be answerable or accountable for his act. While proof of prior insanity is competent, whether a mental condition shown to exist has continued down to the time of the commission of the alleged criminal act is solely a question of fact to be determined by the jury. And the defendant in a criminal case who sets up insanity as a defense does not relieve himself from showing his insanity at the very time of the commission of the criminal act by proof merely that he was insane at an earlier time.

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# Current Medical Literature

## AMERICAN.

Titles marked with an asterisk (*) are abstracted below.

### American Medicine, Philadelphia.

*April 8.*

1 *Significance of the Urinary Examination in Women. G. L. [illegible] Baltimore.
2 * [illegible] in the Etiology of Scoliosis of [illegible] Gould, Philadelphia.
3 * [illegible] nsplantation. H. A. Wilson, Phil-
4 *Extrauterine Pregnancy at Full Term; Total Extirpation of Uterus and Placenta by a New Technic: Recovery. H. N. Vineberg, New [illegible]ork.
5 *Pathologic Change[illegible] Resulting from Prostatic Enlargement. C. E. Barnett, Ft. [illegible]ayne, Ind.
6 *Enterostomy. J. W. [illegible]ong, Greensboro, N. C.
7 Two Cases of Lan[illegible]'s Paralysis: One Terminating in Recovery, the Other [illegible] Death. T. Diller, Pittsburg, and C. L. Billard, Allegh[illegible].

1. **Urinary Examination in [illegible]omen.**—Hunner urges a more frequent examination of the ur[illegible] in cases of obscure diagnosis and discusses some simple meth[illegible]s of examination, citing illustrative cases.

2. **Factors in Etiology of Scler[illegible]**—According to Gould, the school desks and seats, imperfect and unhygienic as they may be, are not the primary or chief factors in the production of morbid writing postures, and hence do not, *per se*, cause spinal curvature. They are not the cause of slant handwriting, nor has slant writing any relation, as a cause, to disease or to malposture, but is solely a result of malposture. With the head and body erect, the paper straight before the median line of the body and the penholder held as commanded, the writing and the writing field about the penpoint are hidden by the writing hand. The pupil skews the paper, tilts the head to the left and grasps the holder differently, all in order to bring the writing field and letters being made into clear view, and especially of the right or "dominant" eye. Beside the bending of the head and usually also of the body, to the left, there is a synchronous rotation or torsion of the head to the right in order to bring the predominant 90 and 180 degrees axes of astigmatism into alignment with the upright strokes and lateral lines of the pen and paper. The cervical vertebræ are thus forced into a combination of three morbid positions, caused by bending the head forward, canting it to the left, and rotating it so that the chin is turned to the right. There is thus produced a threefold increase of the scoliosis producing agency which is transmitted to the dorsal and lumbar regions of the spine in the effort at compensation. Other topics discussed are the head tilting from astigmatism, the organic results of such tilting, and the prophylaxis and cure of the malposture.

3. **Tendon Transplantation.**—Wilson concludes from his personal experience that tendon transplantation, alone or combined with arthrodesis or other bone operations, offers prospects of materially adding to the comfort, convenience and usefulness of a very large class of patients otherwise more or less dependent on forms of mechanical apparatus. Arthrodesis alone possesses advantages in cases incapable of benefit from tendon transplantation. Various forms of osteotomy, osteoclasis and other bone operations are available for the removal of deformity and for the prevention of undue strain on the soft parts around the joint.

4. **Extrauterine Pregnancy.**—In the case described by Vineberg the pelvis was filled with a hard, nodular mass which seemed continuous with the pelvic wall. The patient was very much emaciated and exhausted, and to save her life Vineberg adopted a new technic. He first ligated the ovarian and uterine vessels on the free side, cutting the uterus across at the level of the os internum without making any attempt to separate it from the mass to which it was most intimately united, and then ligating the uterine artery on the involved side. In this way he cut off the main blood supply before making the attempt to enucleate the enormous placental mass. The work of enucleation was also made easier by enabling the operator to work from below upward. The patient made an uneventful recovery.

5.—See abstract in The Journal of October 29, p. 1326.

6. Ibid.—December 24, p. 1988.

### Medical Record, New York.

*April 8.*

8 **Treatment of Pyelitis.* H. A. Kelly, Baltimore.
9 Etiology of Enlarged Prostate. L. B. Bangs, New York.
10 *Microscopic Examination of Fasting Stomach Contents and Its Diagnostic Value. W. Ackerman, Milwaukee, and L. M. Gompertz, New Haven, Conn.
11 Acute Cholecystitis in Puerperium. Report of Two Cases; Cholecystostomy; Recovery. H. N. Vineberg, New York.
12 Conservative Treatment of Protracted Cases of Acute Otitis Media Purulenta, with Its Complications. A. Wiener, New York.
13 *Modification of Heller Test for Albumin in the Urine A. S. Payn, New York.

8. **Treatment of Pyelitis.**—Kelly endeavors to show from a personal experience extending over sixteen years that pyelitis is an affection of the utmost importance, and that in one of its most important phases, namely, its earlier stages, it is still rarely recognized, or, when found, is often thought worthy of but little attention because it is not immediately provocative of serious symptoms. A pyelitis of recent origin, which is let alone, often gets well spontaneously by the natural process of

irrigation as the urine sweeps the infecting organisms down through the renal pelvis and the ureter into the bladder. If there is an obstruction at any point causing a damming up of the urine, the pyelitis is almost sure to linger in a chronic form. Many cases of pyelitis remain for long periods *in statu quo*, while other cases grow worse, ending in a high grade of pyelonephritis or the kidney becomes converged into an abscess sac. A pseudo-cure may take place by the closure of the sac, in which case the abscess may either persist or may rupture into the bowel, into the pleura, into the loin, into the groin, or even into the peritoneum. It is important to take cognizance of a pyelitis of any grade whatever, as it may, at any time, become a menace to the functional value of the kidney or even to life itself.

10. **Diagnostic Value of Microscopic Examination of Stomach Contents.**—Attention is directed by Ackerman and Gompertz to the fact that not enough attention is paid to the importance of microscopic examination of the stomach contents. They advocate that when the diagnosis is in any way obscure it should be a routine practice to make a thorough microscopic examination of the contents of the fasting stomach. Such examination is especially indicated when the slightest suspicion exists of gastrosuccorrhea, stagnation—whether due to benign or to malignant obstruction—or ulcerating cancer not causing stenosis. The presence or absence of hydrochloric acid is easily determined with a microscope. The presence of unchanged epithelial cells signifies absence of HCl and pepsin; whereas the presence of free nuclei of leucocytes and of epithelial cells is positive evidence of the presence of hydrochloric acid and pepsin. The presence of sarcinæ, yeast cells and chains, food remnants, such as starch granules, muscle fibers, etc., prove the existence of stagnation. If the microscope shows the constant presence of pus and blood, and their origin can be excluded as coming from an acute phlegmonous gastritis or purulent inflammation from other parts, a positive and early diagnosis of ulcerating interosteal carcinoma can be made long before a tumor is palpable or characteristic symptoms are present. In all suspected cases, especially with progressive emaciation, anorexia, gastric distress, etc., without stagnation, but with achylia gastrica, an endeavor should be made to procure some of the fasting stomach content for examination. Infusoria are always found with pus and blood, and these conditions are present only in cases of interosteal carcinoma not attacking the pylorus. They are found long before the appearance of a tumor. In the stagnating stomach contents containing lactic acid the sarcinæ are supplanted by the Oppler-Boas bacilli, and these should be considered of even more diagnostic importance as indicating malignant stenosis than the finding of sarcinæ in benign obstruction. In pyloric carcinoma the situation of the growth is such that it is hidden by the liver and the detection of these bacilli often leads to a diagnosis long before the tumor is palpable. However, if from any cause whatsoever, a pyloric obstruction occurs, the Oppler-Boas bacilli are liable to be found in the stagnating stomach contents. According to Cohnheim, about 99 per cent. of the cases with stagnation and Oppler-Boas bacilli or lactic acid are pyloric carcinoma, therefore, the presence of the Oppler-Boas bacilli can be regarded as an indicator for operative procedure.

13. **Modification of Heller Test.**—Payn places the inclined tube which contains the Heller in a low flame, heating the urine just short of ebullition, care being taken not to disturb the contact. After a few moments the tube is examined by placing it against a dark background, when it will be noted that the urine is not only clarified, but at the line of contact there will be found precipitated small quantities of albumin not apparent when the test is performed cold.

### Medical News, New York.

*April 8.*

14 *Further Notes on the Function of the Parathyroid Glands. W. G. MacCallum and C. F. Davidson, Baltimore.
15 Two Cases of Pernicious Anemia Due to the Dibothriocephalus Latus. A. Meyer, New York.
16 Case of Dibothriocephalus Latus Infection, Causing Pernicious Anemia, with Complete Recovery. W. Gilman Thompson, New York.
17 *Symptoms and Diagnosis of Cerebrospinal Meningitis. H. L. Elsner, Syracuse.
18 *Eye Symptoms of Cerebrospinal Meningitis. A. E. Davis, New York.

14. **Function of Parathyroids.**—This is a further report by MacCallum and Davidson of the results of their experiments carried out for the purpose of determining the function of the parathyroid gland. They found that after complete parathyroidectomy the life of the animal can be maintained only with the greatest difficulty by the injection intravenously of relatively large quantities of parathyroid material. They believe that the cases in which the symptoms are relieved for a long time by insignificant doses given subcutaneously, are instances in which the extirpation of the parathyroids was incomplete. From this it follows that the treatment of the tetany which has been seen to follow the extirpation of the thyroid (with the parathyroids) in human beings, by the use of parathyroid extracts, would probably be almost impracticable, although the use of such material might, perhaps, be beneficial in those cases in which symptoms are due to a less intense parathyroid insufficiency. The condition is different from that found after extirpation of the thyroid alone, in that the symptoms appear so rapidly, are so quickly fatal, that there is no time to apply the usual methods of administration of the organ extracts which are so effective in the case of myxedema. The emulsion or extract of parathyroid, to produce its maximum effect, must be introduced into the veins in considerable quantity.

17. **Cerebrospinal Meningitis.**—Elsner rehearses his experiences with cerebrospinal meningitis in the central counties of New York state. He says the disease may be either sporadic or epidemic and that it appears every year. House epidemics in which from two to five members of a household were attacked, without further spread of the disease, has been met on five different occasions. Another interesting fact noted was the presence of other infectious diseases of the nervous system during the prevalence of even limited epidemics of cerebrospinal meningitis. On three occasions within the past ten years cases of cerebrospinal meningitis, acute choliomyelitis anterior and Landry's paralysis have occurred almost side by side. With either sporadic or epidemic cerebrospinal meningitis mixed infection is not uncommon; occasionally the pneumococcus may be found with the Friedlander bacillus. Elsner says the pneumococcus as certainly causes cerebrospinal meningitis as it does malignant endocarditis, and both of these fatal infections without pulmonary inflammation. The infection is malignant, the clinical picture is characteristic, cerebral, spinal and peripheral symptoms are abundant. Early death is the rule. These cases are less frequent than are those associated with pneumonia. Cases of cerebrospinal meningitis with pneumonia have been uniformly fatal in Central New York. In the majority of cases it is exceedingly difficult to diagnose this complication. Timely and frequent lumbar punctures offer aid which may prove conclusive. Meningococcus pneumonia may complicate cerebrospinal meningitis. Pneumococcus meningitis may follow distal infection, such as extraction of the teeth, following an attack of otitis media, and subsequent to a transverse fracture at the base of the brain.

18. **Eye Symptoms of Cerebrospinal Meningitis.**—Davis divides the eye symptoms of this affection into two groups—motor and visual. Besides these two main groups there is frequently present a conjunctivitis, which at times is attended with marked swelling and edema of the lids. Among the motor symptoms are mentioned paralysis of the third, sixth, fourth, ophthalmic division of the fifth, and seventh nerves, which may be partial or complete from pressure on the nerve trunks. There also may be conjugate deviations, nystagmus and ptosis from cortex lesions. Optic neuritis, neuroretinitis and perineuritis, optic atrophy, panophthalmitis, photophobia, keratitis, iridochoroiditis and venous congestion of the fundus and visual symptoms are sometimes present. Although, as a rule, the diagnosis of cerebrospinal meningitis may be made from the general symptoms, there are cases in which these are not well marked and in which the eye symptoms, especially

where there are changes in the fundus, may serve to clear up the diagnosis. *Inequality of the pupils, particularly if accompanied by squint, should place the general practitioner on his guard.* The prognosis in these cases in which there are eye lesions, especially when the fundus is affected, is always more grave than in those cases in which there are no eye symptoms. Of eight cases affected with neuroretinitis four died, two were cured, and two were not followed to a conclusion, making the percentage of deaths equal to 66.6 per cent., while in 10 cases where there were no eye symptoms there were but 50 per cent. of deaths.

### New York Medical Journal.

*April 8.*

19 Operative Treatment of Chronic Suppurative Otitis. A. B. Duel, New York.
20 *Spondylose Rhizomyelia: Study of the Relative Frequency of Spinal Involvement in Rheumatoid Arthritis with Autopsy Findings. D. J. McCarthy, Philadelphia.
21 Asepsis and Antisepsis in Obstetrics: Also "Sterile Gauze" and "Sterile Water." J. M. Mabbott, New York.
22 Clinical Lecture on a Case of Typhoid Cholecystitis. J. C. Da Costa, Philadelphia.
23 Food Preservatives and Food Adulterations. H. W. Wiley, Washington, D. C.
24 Gonococcus in Vulvovaginal Region. H. J. Boldt, New York.
25 *Two Unusual Conditions Affecting the Gastric and Epigastric Regions. W. Moser, Brooklyn.
26 *Atony of Rectum and Anal Sphincters: Its Etiology, Pathology, Diagnosis and Treatment.* W. Bodenhamer, New Rochelle, N. Y.
27 Diet in Typhoid Fever. (To be concluded.) S. Stalberg, Philadelphia, H. M. Pierce, St. Louis.

20. **Spondylosis Rhizomyelia.**—A study of the relative frequency *of spinal involvement in rheumatoid arthritis* is presented by McCarthy and two cases are reported for the purpose of contrasting it with rheumatoid arthritis associated with involvement of the spinal column. One of the cases was of considerable interest on account of the early age at which it developed and because of the presence of sensory and reflex symptoms indicative of root and spinal involvement. The author also cites twelve cases of rheumatoid arthritis with spinal involvement.

25. **Two Unusual Conditions.**—The first case reported by Moser was one of epigastric myoclonus or gastroclonus; the second case was one of hysterical acute gastrospasm.

### Boston Medical and Surgical Journal.

*April 6.*

28 History of the Boston Society of Psychiatry and Neurology for Twenty-five Years. W. Channing, Brookline.
29 *Surgical Treatment of Nephritis. A Résumé. P. Thorndike, Boston.
30 Diet in Nephritis. H. Jackson, Boston.
31 Some Further Observations on Leucocytoxins. H. A. Christian and T. F. Leen, Boston.

29. **Surgical Treatment of Nephritis.**—Following the decapsulation of kidneys in rabbits, in normal dogs, in dogs with induced nephritis, in dogs with infarcts of kidneys, and in dogs with normal kidneys, but with additional work thrown on them, Thorndike found that in all his cases of two days and under and in controls, where the capsule was removed, for over two-thirds the surface there was a certain amount of immediate increase in size of the decapsulated kidneys, persisting up to one month at least, and afterwards a decrease to approximately normal size, complete at the end of six months. There was congestion, moderate in degree, most marked in the intertubular blood vessels in the cortex, lasting from three to five days after the operation. No histologic change in the renal epithelium was noted, but a new capsule, very vascular at first, and from two to four times the thickness of the old, was well marked at the end of eight days. This new capsule arises chiefly from the connective tissue cells of the intertubular connective tissue, but in part from the retroperitoneal connective tissue which is present in the new bed of the kidney. No new vessels are formed which anastomose with those of the kidney. The increase in size is due primarily to the increase in blood supply, possibly resulting from the removal of the capsule. Thorndike says that the evidence at hand proves that a new capsule forms within a few weeks after operation, but that the establishment of a collateral circulation, sufficient in degree to materially affect the renal tissue, may at present fairly be doubted.

### Lancet-Clinic, Cincinnati.

*April 8.*

32 Puerperal Convulsions—Cases and Treatment. M. A. Tate, Cincinnati.
33 Malignant Growths of the Eye. A. O. Pfingst, Louisville, Ky.
34 Question of Wound Infection, with Special Regard to Those Due to Catgut. J. W. Robinson, Chicago.

### St. Louis Medical Review.

*April 1.*

35 Some Things Proctologic. W. M. Beach, Pittsburg.
36 Penetrating Gunshot Wounds. J. Y. Brown, St. Louis.
37 *Review of Treatment Immediately Before and After Abdominal Section.* L. S. McMurtry, Louisville.
38 Some Points in the Practice of Hypnotism. C. L. Tuckey, London.
39 Rupture of the Gall Bladder (Spontaneous and Traumatic, with and Without Operation); an Historical Review of 273 Cases. (Concluded.) B. M. Ricketts, Cincinnati.

### American Journal of Obstetrics, New York.

*March.*

40 Can Our Present Method of Utilizing the Principle of Axis-Traction in Obstetric Practice be Further Developed? A. C. Jacobson, Brooklyn.
41 Prevalence of Puerperal Septicemia in Private Practice at the Present Time, Contrasted with That of a Generation Ago. S. P. Warren, Portland, Maine.
42 Cesarean Section for Dystocia Following Myomectomy. J. C. Hubbard, Boston.
43 Indications for Cesarean Section: Report of Two Cases: Recovery. J. F. Moran, Washington.
44 Theories of Eclampsia. J. B. De Lee, Chicago.
45 Treatment of Eclampsia. C. B. Reed, Chicago.
46 Application of Forceps in Contracted Pelves. E. Sothoron, Washington, D. C.
47 [illegible] of Uterus. D. G. Lewis, Washington, D. C.
48 [illegible] of Abortion. A. B. Keyes, Chicago.
49 *[illegible] Special Reference to Use of Oil of Cloves. [illegible] Webster, Chicago.
50 *Hand Sterilization by Oil of Cloves. E. Rosenow.
51 Postoperative Complications Involving the Bronchi, Lungs, etc. G. [illegible]
52 *Non-Operati[illegible] S. Bacon, Chicago.
53 *Technic of [illegible] of the Uterus. H. *Beyea, Philadelphia.*
54 *Results of Ventral Suspension of Uterus at Johns Hopkins Hospital. G. R. Holden.
55 *Cesarean Section Following Ventrofixation. M. A. Smith, Boston.
56 Uncomplicated Varicose Veins of Female Pelvis. S. M. Miller, Peoria, and A. B. Kanavel, Chicago.

49. **Hand Sterilization.**—Webster describes his method as follows: The hands are scrubbed for five minutes with any good soap and hot water, the latter being frequently changed A boiled stiff nail brush is used. The skin is then dried with a sterile towel and rubbed for one minute with alcohol in order to remove any remaining moisture. When it is dry, unpurified clove oil is rubbed into the skin for four or five minutes and afterward washed off with alcohol. Clove oil is a powerful solvent of fats and penetrates deeply into the skin. The unpurified oil is less expensive and is probably a better germicide, its impurities being acid in nature, than the purified oil. The hands thus cleansed are thoroughly rubbed with sterilized talc powder and covered with smooth dry rubber gloves which have been boiled for fifteen minutes. The skin of the hand is the same at the end of the operation as at the beginning. It is very smooth, the sterile talc having been rubbed into all the irregularities. The operator should wear gloves of medium thickness, which are made from a model of his hands, thus securing a perfect fit.

50. **Id.**—Bacteriologic experiments made by Rosenow with a view to determining the value of the above method showed conclusively that clove oil as an antiseptic is far superior to creolin (80 per cent.) and bichlorid (1 to 2,000). It was also found that clove oil possesses a marked degree of antiseptic power.

52. **Non-Operative Treatment of Eclampsia.**—All forms of non-operative treatment of eclampsia are classified by Bacon under the two heads of *eliminative and symptomatic,* which includes antispasmodic and supporting. As eliminative treatment are included all measures of securing catharsis, diuresis and diaphoresis, while symptomatic treatment includes the administration of morphin, chloral, chloroform and ether, veratrum viride and oxygen inhalation. In the pre-convulsive stage attention to diet and the bodily activities with regulation of the elimination are practically the only means of con-

trolling the disease and of averting its climax. Strict rest in bed for serious cases is of equal importance to a proper diet. As diuretics the rule will exclude specifically the metals, coal-tar products, volatile oils, digitalis, aloin, as well as most of the salts of the alkali. Salt solution should be used with great caution. To control the convulsions Bacon favors the hypodermic use of morphin, beginning with an initial dose of from 1/3 to 1/2 grain when the patient is first seen, and then giving from 1/6 to 1/4 grain after each subsequent attack until from 1 grain to 1½ grains are given. Danger of asphyxia is avoided by the use of oxygen. Veratrum viride he regards as a dangerous heart poison which can well be discarded from our armamentarium. Oxygen inhalation is especially indicated during an attack when there is great danger of asphyxiation. In case morphin is given in large doses oxygen should be used to counteract the slowing of the respiration, and it should be administered constantly when an anesthetic is given. It is one of the first things to be procured when taking charge of a case of eclampsia. The conditions existing after the successful delivery of the patient either spontaneously or by operative measures call for supporting or symptomatic eliminating treatment in which besides the agent already mentioned strychnin and nitroglycerin may be valuable.

53. Ventrosuspension of Uterus.—See abstract in The Journal, Jan. 14, 1905, p. 162.

54. Id.—From April, 1892, to June, 1903, the uterus has been suspended to the anterior abdominal wall over 900 times at the Johns Hopkins Hospital. In 445 of these cases, Holden has succeeded in securing a more or less complete postoperative history. The intervals which elapsed between the operation and the subsequent report vary from four months to eleven years. In 184 cases suspension alone, or suspension preceded by dilatation and curettage was done. In 154 cases, plastic operations on the perineum were also done in addition to the suspension. In 46 cases pelvic inflammatory disease was present to such an extent that, in addition to the suspension, portions of the adnexa were removed. In 61 cases suspension was associated with miscellaneous operations, namely, kidney operations, appendectomies, myomectomies, etc. In considering the results obtained in the relief of the subjective symptoms, Holden includes only those cases in which the retroposition was the sole or a prominent factor. In no case was the period from operation to report less than one year. Of 182 cases in which suspension alone was done, 109 cases, or 60 per cent., were successful; 33 cases were relieved partially; 40, or 21 per cent., had no relief. Of 154 cases of suspensions with plastic operations on the outlet, 102, or 66 per cent., were successful; 19 cases were relieved partially; 33, or 21 per cent., had no relief. The prognosis in nulliparæ after suspension of the uterus is not so favorable as in multiparæ with retroposition associated with relaxation of the outlet provided that the relaxed outlet be repaired in addition to the suspension. Of 120 nulliparæ, 109 suffered from dysmenorrhea before operation. Fifty-one patients were absolutely or very greatly relieved; 33 had no relief; the remaining 36 did not state their condition. In 202 multiparæ, dysmenorrhea occurred in 113 cases. In 70 of these, a definite statement was made as to dysmenorrhea after operation; forty-three patients were absolutely or very greatly relieved; 22 had no relief. In 69 of the 445 cases, examinations were made at periods varying from four months to nine years after the operation. In 8 of these 69 cases, the uterus was again in retroposition; in 5 of these 8, recurrences occurred after pregnancies. In 59 cases, the uterus was movabe, but could not be thrown into retroposition. In 2 cases it was fixed to the anterior abdominal wall. An examination of the suspensory ligament in 19 cases, in which a secondary laparotomy was performed later, made it evident that the length of the ligament does not depend on the time which has elapsed since the operation nor on the diameter or breadth of the ligament. The length of the ligament varied from 2 cm. to 18 cm. in 238 of the cases the patients were in the child-bearing period, were not sterilized by operation and were married. One hundred and forty-five reported that they had not borne children since operation; 23 made no report on this subject, while 69 had borne children since operation. The number of labors in these 69 women was 83; 66 of these were entirely normal. In the others, the abnormalities were: Severe nausea and vomiting, 1 case; puerperium and labor normal, died of puerperal septicemia, 1; retained placenta, 1; phlebitis, 1; child still-born, 3; forceps were used in 5 cases. In 2 of these dystocia arising from the suspension can be excluded. Five patients complained of abdominal pain during pregnancy, 4 of them were delivered normally, forceps were used in 1 case. Fourteen cases were examined after labor; 2 cases two weeks after; the others at periods varying from three months to six years. In 5 cases the retroposition had recurred. In 46 cases of pelvic inflammatory disease associated with retroposition of the uterus various portions of the adnexa were removed in addition to the suspension of the uterus. Of the 46 cases, 35 were entirely cured or very greatly relieved; but 2 of these required a second operation for pelvic inflammatory disease. Twenty-nine patients were married, in the child-bearing period and were not sterilized by the operation. Three of these had children after the operation. The right tube and ovary had been removed in 2 cases, the left ovary in 1 case.

55. Cesarean Section Following Ventrofixation.—Smith's paper may be summarized as follows: 1. Ventrofixation is contraindicated during the child-bearing period. 2. If ventral suspension is undertaken, care must be exercised that it does not unwittingly become a fixation. 3. Alexander's operation, or some one of the many varieties of intra-abdominal shortening of the ligaments are more suitable operations for women at this period. 4. In severe cases of dystocia from this cause, immediate cesarean section is preferable to prolonged attempts at vaginal delivery. 5. To prevent a recurrence of the trouble the offending band should be removed.

### Fort Wayne Medical Journal-Magazine.

*March.*

57 Arthritis Deformans. L. P. Drayer, Fort Wayne.
58 Treatment of Arthritis Deformans. A. P. Buchman, Fort Wayne.
59 Diseases Frequently Mistaken for Acute Inflammatory Rheumatism. B. Van Sweringen, Fort Wayne.
60 Clinical Results of High-Frequency Currents. A. W. Crane, Kalamazoo, Mich.

### Annals of Surgery, Philadelphia.

*April.*

61 *Pathology and Etiology of Obstructive Hypertrophy and Atrophy of the Prostate Gland. P. M. Pilcher, New York.
62 Has the Catheter a Place in the Treatment of Chronic Prostatic Hypertrophy? P. Thorndike, Boston.
63 *Prostatism Without Enlargement of Prostate. C. H. Chetwood, New York.
64 Some Anatomic Points Connected with Prostatectomy. F. S. Watson, Boston.
65 Question of Priority in the Adoption of the Method of Total Enucleation, Suprapubically, of the Hypertrophied Prostate. E. Fuller, New York City.
66 *Treatment of Prostatic Hypertrophy by Enucleation Through a Suprapubic Incision. H. Lilienthal, New York.
67 Suprapubic Prostatectomy with Nitrous Oxid Anesthesia. J. Wiener, Jr., New York.
68 *Conservative Perineal Prostatectomy. H. Y. Young, Baltimore.
69. Cause of Incontinence as a Sequel of Prostatectomy. E. W. Ruggles, Rochester, N. Y.
70 *Choice of Operative Method for the Removal of the Hypertrophied Prostate. L. S. Pilcher, New York.
71 Study of Various Forms of Prostatic Hypertrophy from Postmortem Specimens and by the Cystoscope, with Reference to Operation. J. H. Cunningham, Jr., Boston.
73 Transperitoneal Ligature for Aneurism of External Iliac Artery. O. J. Currie, Pietermaritzburg, Natal.
74 Osteoma of the Frontal Sinus. H. Hastings, Los Angeles.

61. Pathology and Etiology of Enlarged Prostate.—Pilcher summarizes his paper as follows: 1. Pathologically there are three types of prostates causing urinary obstruction: (*a*) the large, soft type; (*b*) the hard, small, contracted type, and (*c*) the mixed type. 2. Infection does not influence the variety of the pathologic change. 3. A contracted form of prostate is not a secondary stage of the large, soft type of hypertrophied prostate, but is distinct from it. 4. In many cases of hypertrophy of the prostate there is present a true muscular hypertrophy. 5. In some of the atrophic cases, the glandular elements are relatively diminished, and the muscular elements relatively increased. 6. Gonorrhea is not an important etio-

logic factor in the production of this disease, and there is no necessity for assuming it to be. 7. The theory of obstruction to the ducts causing passive dilatation of the glandular elements does not satisfactorily explain the pathologic findings. 8. Hypertrophy of the prostate results from glandular overgrowth influenced by the degenerative changes of old age and other agents which tend to produce the formation of fibrous connective tissue in an actively functionating gland.

63. **Prostatism Without Enlarged Prostate.**—The experience derived from the study and treatment of 36 cases leads Chetwood to the conclusion that contracture of the neck of the bladder is a common cause for vesical obstruction; that its relief is safe and sure by means of a galvano prostatotomy through a perineal opening; and, finally, that it is often an explanation of what has been termed prostatism without enlargement of the prostate.

66. **Suprapubic Incision in Prostatectomy.**—From an experience in 31 cases, Lilienthal believes that the suprapubic route is the safest and most thorough of all the operations for the relief of prostatic obstruction. It is radical; no important vessels or nerves are cut, the urethra is not injured and wounding of the rectum is exceedingly rare. Palpation and inspection of all parts of the interior of the bladder are easily and accurately made. There is no need for pre-operative cystoscopy. There is an almost total absence of shock and the patient may be out of bed in forty-eight hours. No part of the urethra having been removed, treatment by the passing of sounds is avoided. The operation may be easily performed under nitrous oxid anesthesia. The method is a rapid one, it may, if necessary, be performed in two stages and impotency rarely supervenes. Great care and watchfulness are necessary during the course of the after-treatment.

68. **Conservative Perineal Prostatectomy.**—Young details the results obtained by prostatectomy through the perineal route by the technic previously described by him. During the past two years, he has operated on 75 patients, 4 being over 80 years of age; 23 over 70; 29 over 60; 14 over 50, and 5 under 50. Among these 75 cases there were no deaths definitely attributable to the operation, although 4 patients died; 1 five weeks after operation, from uremia; 1 two weeks after operation, from pulmonary embolism; 1 two weeks after operation, from double pro-hydronephrosis, and 1 on the twenty-fifth day, from double pneumonia. In only two cases of the entire series was there residual urine of any consequence. All the patients can void urine naturally, and no case of continual incontinence has occurred. In a large proportion of the cases the sexual power was maintained after operation. A perineal fistula persisted in only 2 cases. In one of these the prostatic tissue was found to be carcinoma. Young says that while the Bottini method is the simplest and quickest for a certain limited number of cases, it is not so safe and nothing like so uniformly certain of relieving the obstruction as the perineal enucleation.

70. **Prostatectomy.**—This exhaustive article by L. S. Pilcher is concluded with the statement that, as a rule, the method of free curved transverse perineal incision with full exposure of the gland in the operation wound is to be preferred.

### American Journal of Orthopedic Surgery, Philadelphia.

*April.*

75 Study of Angles and Lines Defining the Relationship Between the Pelvis and the Femur. Stewart L. McCurdy, Pittsburg.
76 Trans-pelvic Lines for Determining Displacement at the Hip. Stewart L. McCurdy, Pittsburg.
77 *Three Cases of Double Hip Dislocation. Supplemented by a Report of Seven Cases Operated on by Professor Lorenz. A. J. Steele, St. Louis.
78 Sacro-iliac Disease in a Young Child. A. Thorndike. Boston.
79 Means of Lengthening, in the Lower Limbs, the Muscles and Tissues which are Shortened Through Deformity. A. Codivilla, Bologna.
80 Two Cases of Suppuration of Retromesenteric Lymph Nodes. J. C. Pegram, Jr., Providence.
81 *Operative Treatment of Pes Cavus. H. M. Sherman, San Francisco.
82 Apparatus for Handling Cases of Acute Pott's Disease in Adults. C. Riely, Baltimore.
83 Apparatus for Developing X-Ray Negatives. C. Riely, Baltimore.
84 Two Cases of Congenital Dislocation of Shoulder Joint. F. E. Peckham, Providence.
85 Value of X-Ray Negatives in Study of Orthopedic Pathology. R. B. Osgood, Boston.
86 Sayre's Wire Cuirass. A. G. Cook, Hartford.
87 Consideration of Treatment of Flexible Flat Foot. E. H. Bradford, Boston.

77. **Double Hip Dislocation.**—Steele summarizes the results obtained in the hip cases operated on in St. Louis by Lorenz in November, 1902. There were 7 cases; 10 hips; patients were all females; 3 double and 4 single dislocations. Of the 10 hips operated on 6 had anterior replacement, 2 are in the dorsal position, and 2 (same patient) "not in anatomic reposition" (Dr. Mueller). Whether or not the anterior replacements will improve in functional use remains to be seen. Steele believes that in one case, at least, the head was in the socket on removal of the plaster and that it was permitted to slip out again.

81. **Treatment of Pes Cavus.**—It is true, says Sherman, that section of the plantar fascia and a forcible extension of the fore part of the foot on the hinder part and, perhaps, an achillotomy added to correct the relation of the foot to the leg has overcome the deformity; but the position gained has not been maintained because no force is arranged for in the foot and leg to maintain the corrected position, and an extraneous retentive force is either painful or inefficient.

Sherman cuts the tendons of the long toe extensor muscles from their insertion into the toes and transplants them into the metatarsal bones just behind their heads. Because of the difficulty of holding a foot in a certain position while five tendon sutures were done, Sherman, after such subcutaneous sections of fascia and tendons, and such a manual or instrumental remodeling as was necessary to correct a malposition or deformity, put the foot into a plaster-of-paris splint in the corrected position. Then, immediately after the setting of the splint, he cuts away as much as is necessary from the dorsum, exposes the field of operation, and works on the tendons without the danger of any slipping of the foot which might tear out some of the earlier sutures while the later ones are being placed. Because of the practical difficulty in putting the tendon under the periosteum of the metatarsal bone, and suturing it there while working wholly on the dorsum and in a somewhat limited space, he has carried his sutures directly through the foot and the plantar part of the splint fastening them firmly on the outside of the latter. In this way it is possible to hold the tendon closely against the denuded bone under the periosteum, maintaining the position as long as an absorbable suture will last, and that may be about forty days, if chromicized catgut is used. The operation is described in detail.

### Annals of Gynecology and Pediatry, Boston.

*March.*

88 Secondary Abdominal Operations. II. Remote. E. W. Cushing, Boston.

### Ophthalmic Record, Chicago.

*March.*

89 Concerning the Relationship of Nasal Disorders to Vitreous Opacities. J. A. Patterson, Colorado Springs, Colo.
90 Gunshot Wound of Orbit; Post-Traumatic Delirium; Removal of Bullet with Conservation of Globe. W. C. Posey, Philadelphia.
91 Breechpin in Orbit Three Years. S. L. Ledbetter, Birmingham.
92 Recent Changes in Technic of Some Operations of Eye and Adnexa. J. J. Thompson, New York City.
93 Fracture of Floor of Orbit. G. F. Keiper, La Fayette, Ind.
94 Breechpin in Ophthalmology and Surgery. H. Gifford, Omaha.
95 Combined Anterior Chamber Irrigator and Lachrymal Syringe. E. C. Ellett, Memphis, Tenn.

### Wisconsin Medical Journal, Milwaukee.

*March.*

96 Double Perforation of the Urinary Bladder. E. Evans, La Crosse.
97 The Use of Opium in Mental Diseases. A. W. Rogers, Wauwatosa, Wis.
98 Chorea Gravidarum. G. Seiler, Monroe, Wis.
99 Carcinoma of the Breast. G. F. Shimonek, Milwaukee.
100 Urea: Its Estimation and Importance. C. J. Combs, Oshkosh.
101 The Shades of Modern Surgery. J. Hund, Wausau, Wis.

### Journal of the Association of Military Surgeons, Carlisle, Pa.

*April.*

102 Proposed Medical Reserve Corps for the Army vs. Major Azel Ames' Opinions. W. C. Borden, U. S. A.
103 Is the Common House Fly a Factor in the Spread of Tuberculosis? J. O. Cobb, Los Angeles.

104 Practical Hearing Tests. W. S. Bryant, New York.
105 Radiography in Armies in the Field. H. Mareschal.
106 Relation of the Medical Department to the Health of Armies. W. Hill-Climo, London.

### Southern Medicine and Surgery, Chattanooga, Tenn.

*March.*

107 Etiology of Prostatic Enlargement. G. F. Lydston, Chicago.
108 Mechanism of Immunity Against Tuberculosis. J. R. Briggs, Dallas, Texas.
109 Causes and Symptoms of Nasal Obstruction. J. P. Davidson, Richmond, Va.

### Virginia Medical Semi-Monthly, Richmond.

*March 10.*

110 Vaccination. L. Eliot, Washington, D. C.
111 Uterine Reflexes. J. N. Upshur, Richmond.
112 Vicarious Menstruation or Hemorrhage. M. D. Delaney, Alexandria, Va.
113 Tonsillitis—A Contagious Disease. W. C. Gwynn, Washington, D. C.
114 Methods Employed in Modern Refraction Work. H. H. McGuire, Winchester, Va.
115 Treatment of Prostatic Hypertrophy. L. C. Bosher, Richmond.
116 Gastroenterostomy. W. H. Wathen, Louisville.

### Therapeutic Gazette, Detroit, Mich.

*March 15.*

117 Case of Hour-Glass Stomach the Result of an Ulcer on the Lesser Curvature which Produced a Septum of the Anterior Wall of the Stomach; Anterior Gastrogastrostomy; Recovery; Cure. W. W. Keen, Philadelphia.
118 Limitations and Possibilities of Electricity in Treatment of Diseases of Women. B. C. Hirst.
119 Treatment of Anterior Gonorrhea. S. G. Brown, Montreal, Canada.
120 Rational Treatment of Typhoid Fever. W. R. Lastrapes, Opelousas, La.

### Physician and Surgeon, Detroit and Ann Arbor.

*February.*

121 Present Relation of Otology to the Practice of General Medicine. R. B. Canfield, Ann Arbor.
122 Technic of Operation for Appendicitis. H. C. Wyman, Detroit.
123 Pernicious Anemia. E. H. Pomeroy, Highland Park, Ill.

### Western Medical Review, Lincoln, Neb.

*March.*

124 Pathology and Treatment of Criminal Abortion. W. O. Henry, Omaha.
125 Criminal Abortion—the Nebraska Law. W. A. De Bord, Omaha.
126 Ethics of Criminal Abortion. W. B. Ely, University Place, Neb.
127 Social Causes of Criminal Abortion. I. C. Philbrick, Lincoln.
128 Measures for Prevention of Criminal Abortion. A. B. Somers, Omaha.
129 Hyperchlorhydria Gastrica. A. O. Peterson, Omaha.
130 Malpositions of the Uterus. E. Brown, Omaha.
131 Necessity of Exploratory Abdominal Section in Some Cases B. B. Davis, Omaha.

### Medical Fortnightly, St. Louis.

*March 25.*

132 Case of Brain Tumor; Operation; Recovery. C. Pope and A. M. Cartledge, Louisville.
133 Salisbury Plan in Treating Consumption. J. H. Adams, Paoli, Pa.
134 Literature on Cancer. (Continued.) C. E. Black, Jacksonville, Ill.

### Columbus Medical Journal.

*March.*

135 Treatment of Acute Non-Suppurative Otitis Media. E. Pynchon, Chicago.
136 Prevention of Tuberculosis. J. W. Clemmer, Columbus.
137 Tuberculosis—Causation. C. L. Spohr, Columbus.
138 Membranous Croup and Its Therapeutics. G. H. Mayhugh, Westerville, Ohio.
139 Meeting Emergencies. W. C. Gates, Marysville, Ohio.
140 Management of Abortion. J. H. Ray, Coalton.

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## FOREIGN.

Titles marked with an asterisk (*) are abstracted below. Clinical lectures, single case reports and trials of new drugs and artificial foods are omitted unless of exceptional general interest.

### British Medical Journal, London.

*March 25.*

1 *Affections of Some Joints as Met with in General Practice. E. Owen.
2 Short Note on the Nose and Naso-pharynx. S. Paget.
3 *Opening of Peritonsillar Abscesses. S. Thomson.
4 Soft Fibroma of Larynx and Neck. F. T. Paul.
5 Commonly Overlooked Factors in Vocal Mechanism. R. F. E. Austin.
6 Some Observations on the Pathogenesis and Prevention of Loss of Voice in Singers. J. Horne.
7 *Preliminary Note on Renal Activity During Anesthesia. W. H. Thompson.
8 Transillumination of the Antrum of Highmore. A. B. Kelly.

1. **Affections of Joints.**—Owen strongly urges that more attention be paid by general practitioners to affections of joints, no matter how trivial they may be. A thorough examination should always be made, and though there may be nothing wrong with the joint so far as sight or touch can make out, it is the duty of the physician to put the limb at rest the moment advice is sought. Owen uses side splints made of flannel or leather, preferably of the latter, and describes in detail their use, manufacture and application, for different joints.

3. **Opening of Peritonsillar Abscesses.**—Thomson has adopted the following procedure: To reach the abscess, the soft palate itself must be traversed and the sight of election is a point which can readily be located by drawing an imaginary horizontal line across the base of the uvula and a vertical line along the anterior faucial pillar. The point of intersection is found to overlie the supratonsillar fossi. Just external to this is the best point for opening the abscess. Another guide is that this point will be found on an imaginary line extending from the base of the uvula to the upper wisdom tooth on the same side. The field of operation is cleansed and sprayed with a 5 per cent. cocain solution. The abscess is opened with a pair of Lister's sinus forceps, or a modification of this instrument as devised by Thomson. It is better to use the forceps than the knife. There is less risk of wounding a large vessel, and the patient is more likely to permit the proceeding. The duration of the illness is also curtailed considerably.

7. **Renal Activity During Anesthesia.**—Recent observations carried out by Thompson have disclosed an unexpected effect on the secretion of urine produced by ether and chloroform when inhaled for the purpose of producing anesthesia. In one series of experiments the urine was collected by means of canulas placed in the ureters, the animals being narcotized with morphin supplemented, when necessary, by a short inhalation of a mixture of ether and chloroform. In the second series the urine was drawn off from the bladder by a catheter, no previous narcotics being required. Two opposite effects were noted in the case of each anesthetic. During the administration some of the animals showed a pronounced increase in the secretion of urine, others a marked depression. Both types were exemplified in each class of experiments, but the increased effect was more frequent and pronounced in the ureter experiments, the decrease in the catheter experiments. From these experiments it appears that the early effect of both ether and chloroform, lasting up to the period of complete insensibility, is ordinarily an increase of the secretion of urine. This, as a rule, is more pronounced in the case of ether than of chloroform, but during full anesthesia, however prolonged, the secretion of urine is almost completely arrested. The depressing effect during this period is more pronounced with ether than with chloroform. On removal of the anesthetic the kidneys rapidly recover, and there is hyperacidity which lasts for some hours.

### Practitioner, London.

*April.*

9 *Obscure Cases of Cancer of the Stomach. G. N. Pitt.
10 *Treatment of Scalp Ringworm. T. C. Fox.
11 Pathology and Treatment of Puerperal Eclampsia in the Light of Recent Work. A. W. Sikes.
12 *Cytodiagnosis of Pleural and Cerebrospinal Fluids. E. Turton.
13 Attempts to Find a Specific Remedy for Tuberculosis. C. H. Cattle.
14 Review of Recent Investigations on the Physiology and Pathology of Secretory Tissues. H. B. Shaw.
15 Review of Recent Work in Obstetrics. W. E. Fothergill.

9. **Obscure Cases of Stomach Cancer.**—Pitt reviews a series of 17 cases of cancer of the stomach in which the main symptoms were unconnected with that organ. The symptoms of ascites and pleuritic effusion were present in 7 cases; of matted intestine, 3 cases; of intestinal obstruction, 2 cases; of abdominal suppuration, 2 cases; of profound anemia, 2 cases; of iliac tumor, 1 case. In the history of these cases the gastric symptoms frequently were trivial, and although in some it was realized that there was malignant disease, the involvement of the stomach was but rarely diagnosed. In this connection Pitt draws attention to the valuable information

which sometimes may be obtained by a systematic examination of the glands above the clavicle, and especially of those behind the left sternomastoid muscle. The most important gland and often the only one to be involved, lies behind the two lower roots of the muscle. It may be the only external gland infected by cancer of the abdominal cavity. Growth in this gland in more than half the cases indicates primary disease in the stomach, less often in the uterus and exceptionally in the pancreas, liver, kidney or ovary. The left gland is involved four times as frequently as the right. The history of each case is given in detail.

10. **Treatment of Scalp Ringworm.**—Fox reviews the general rules of procedure and the choice of a method and remedies, that advocated by Aldersmith being given the preference. Fox applies an ointment containing one gram of croton oil to the ounce of a base, and this is rubbed in daily, or as often as necessary, to excite the desired degree of inflammation. Such *a state is then maintained by judicious reapplication until all* the diseased stumps have fallen or have been epilated. All pus formation is rigorously cleansed away, and the pus formation is not allowed. There is no method, says Fox, comparable to croton oil, needling for residual and isolated stumps.

12. **Cytodiagnosis of Pleural and Cerebrospinal Fluids.**—This subject is thoroughly discussed by Turton. In pleural effusions an excess of lymphocytes generally indicates a tubercular origin; a preponderance of polymorphonuclear cells, an inflammatory process due, for instance, to a pneumococcal or streptococcal infection. A passive or mechanical transudation contains, as a rule, a large number of endothelial cells. The cerebrospinal fluid in meningitis of tubercular origin usually shows lymphocytosis, while in inflammatory states caused by the meningococcus, the pneumococcus or streptococcus, and in posterior basic meningitis it is characterized by an excess of polymorphonuclear cells. The presence of lymphocytes is almost constant in general paralysis of the insane, in tabes dorsalis and in syphilitic diseases generally of the central nervous system. The importance of early antisyphilitic treatment in these diseases is generally acknowledged, and cytology would seem to afford the means of making an early diagnosis.

### Bulletin de l'Académie de Médecine, Paris.

16 (Year LXIX, No. 10, March 10.) *Discussion sur la paralysie générale de la syphilis. Raymond and Joffroy.
17 (No. 11.) Foreign Bodies in Joints.—Note sur les corps étrangers articulaires et en particulier sur les corps traumatiques étudies au point du vue expérimental et histologique. V. Cornil and P. Coudray.
18 *Discussion sur la paralysie générale de la syphilis. A. Pinard, Hallopeau and Lancereaux.
19 Action toni-musculaire et diurétique de l'acide formique et des formiates. H. Huchard.

16 and 18. **General Paralysis and Syphilis.**—In the discussion that followed Fournier's communication on this subject, summarized in these columns on page 1153, Raymond emphasized the fact that heredity plays a very important rôle. General paralysis requires a soil prepared by a condition of lesser resistance, inherited or acquired, on the part of the cortex. Joffroy denied any connection between general paralysis and syphilis, affirming that they are two distinct affections both in their origin and in their nature. Syphilis is merely a good manure to render the soil fertile; it does not contain the seed. The geographical distribution of syphilis and general paralysis differs. In certain countries in which syphilis is prevalent and severe, such as Japan, Algiers, Bosnia, Tunis, Abyssinia, Indo-China, Corea and the Malabar coast, general paralysis is exceptional, at least among the natives, and is, in some entirely unknown. When tertiary lesions are observed in a general paralytic, mercurial treatment will cure these lesions although it does not affect the paralysis. On the other hand, syphilitic visceral lesions are exceptional in general paralytics. He regards mercurial treatment as no protection against general paralysis, and as dangerous after it is established. In response, Raymond cited Marchand's recent work which obtained one of the Académie prizes last year. He presented evidence to show that the brains of general paralytics frequently show unmistakable syphilitic lesions. They have to be sought with care in series of sections, examining especially the depths of the furrows separating the convolutions. He found evidences of inherited syphilis in 67 per cent. of all cases of juvenile general paralysis.

Pinard urged that physicians should devote more thought to preservation of the species from syphilis. The profession has accomplished wonders in preserving the wife from contamination, but it has paid too little attention to preserving the offspring. The birth of a healthy child is not a decisive proof that the father has been cured of syphilis. Every syphilitic who wants to have healthy children should take a "heredity course" of mercurial treatment, supplementary to his own course. After the usual careful course of antisyphilitic treatment, when the patient is free from all trace of syphilis and wishes to procreate healthy children, Pinard's practice for twenty-six years has been to institute then a six-months' course of mercuric iodid and potassium iodid before he gives the patient permission to procreate. Pinard orders the same course of treatment for the wife during the entire period of gestation. He orders also a repetition of the same treatment before the procreation of each child. He has never had a failure and he appeals to all physicians to protect the race from the ravages of syphilis. The present prophylaxis protects the man himself, it protects the wife, but it is insufficient to protect the offspring in all cases. Hallopeau regards general paralysis in a syphilitic as an affection induced secondarily in a predisposed subject by specific neoplasms in the meninges or in the brain substance, developing independently later. He suggests the name deuteropathy for such an affection, as this implies its filiation with the mother disease and the independence of the secondary inflammation which has its own evolution and may in time dominate the situation. General paralysis he accepts as a deuteropathy usually induced by syphilis, but liable also to develop under the influence of other causes. Energetic treatment of syphilis may, therefore, ward off the specific lesions, and thus the general paralysis. If the premonitory symptoms of the condition can be detected, with specific treatment on their appearance, the development of the neoplasms may be aborted and the deuteropathy averted. Lancereaux affirms that the lesions of diffuse periencephalitis—which is the essence of general paralysis—differ in every respect from the lesions of syphilis. They differ in character and in evolution and are two affections between which there is no connection. Raymond in reply cited data to prove that better knowledge has revealed a closer connection between many things than was at first imagined. He added that when the data furnished by histology seem to contradict those of the clinic, we must always appeal from pathologic anatomy with imperfect technic to better informed pathologic anatomy.

### Presse Médicale, Paris.

*Last indexed page 1231.*

20 (1905, No. 6.) *Pathogénie de certains cas d'edème aigu du poumon (acute edema of lung). O. Josué.
21 Indications de l'hystérectomie abdominale pour annexites. J. Delage.
22 *X*-rays in Ophthalmology.—Action des Rayons X sur l'oeil et radiothérapie oculaire. G. de Lapersonne.
23 (No. 7.) Medical Mutual Life and Accident Insurance.—L'assurance mutuelle-médicale. Vimont.
24 *Procédé de néphrectomie pour cancer. R. Grégoire.
25 L'action du muscle court supinateur dans la paralysie du nerf radial. G. Guillain and Courtellement.
26 (No. 9.) *Polyurie et éliminations urinaires dans le méningite cérébro-spinale. Loeper and X. Gouraud.
27 *Les maladies infectieuses et l'herédité. J. De Nittis.
28 (No. 10.) L'ensei [illegible] à la clinique Tarnier (instruction in [illegible]
29 *Les neurofibrilles [illegible] et les travaux de S. Ramon y Cajal. L. Azoulay.
30 (No. 11.) *Les nouveaux appareils à chloroformisation. P. Jayle and G. Berruyer.
31 *Paraplégies diphthériques frustes. C. Aubertin and L. Babonneix.

20. **Acute Edema of the Lung.**—Josué is convinced that there is some close connection between arterial hypertension, atheroma and acute edema of the lung in many cases of the latter. The symptom-complex, in his opinion, suggests some functional disturbance in the suprarenals. Repeated injections of small amounts of the active principle of the suprarenals produce typical lesions of arterial atheroma in animals. On the other hand, he has found indications of excessive functioning of the suprarenals in 3 atheromatous cadavers. If considerable

amounts of the active principle of the suprarenals are injected into rabbits the animals invariably succumb with symptoms of acute edema of the lungs. His experimental research failed to show that kidney lesions had any direct predisposing influence on the occurrence of acute edema of the lungs, phenomena were noted, however, which suggested the possibility that a primary kidney lesion, with its resulting autointoxication, might be the primal cause of the excessive functioning of the suprarenals.

**24. Nephrectomy for Cancer.**—Grégoire describes a technic by which the kidney, the tumor and the surrounding tissues, the lymphatics and the cellular adipose tissue and ganglia can all be removed in one piece as in operating on the mamma. He followed this technic in several cases and found it exceptionally simple and easy, while the results promise to be permanent. The patient lies half way between the dorsal and the lateral decubitus, with a block of wood under the lumbar region. The incision is on an extension of the axillary line, and reaches from the costal arch to the iliac crest. It is then carried forward, skirting the costal arch for 4 or 5 cm., and then downward along Poupart's ligament, thus outlining a flap, down to but not through the peritoneum. This allows ample access to the kidney and its environment. The article is illustrated.

**26. Urinary Elimination in Cerebrospinal Meningitis.**—Loeper asserts that polyuria dominates the urinary syndrome in ordinary cerebrospinal meningitis. He has had patients with a temperature of 40 C. and over, who passed from 3 to 4 quarts of urine a day. The urine is clear, only slightly, if at all, albuminous, but azoturia is the rule. From 34 to 47 and 57 gm. of urea were found in the urine of some of the patients, the largest amount being 84 gm. in one patient with 2 liters of urine. The elimination of chlorids is uneven, from 5 to 17 gm. were noted and 24 gm. in the morning with 7 in the evening in one patient. Phosphates were found in large proportions in the 3 cases examined from this point of view. Drugs ingested appeared in the urine exceptionally promptly and abundantly, showing exaggerated permeability of the kidneys in this disease. The proportions of sugar and urea in the blood were also remarkably high. The phenomena observed indicate overproduction and overelimination from bulbar irritation. If the case is a very grave one, or if it is due to the pneumococcus, this polyuria does not occur. When the toxic infection is intense, this overproduction and overelimination are not observed. The character of the urine is so special that it serves to differentiate ordinary cerebrospinal meningitis from typhoid fever, grippe and tuberculous meningitis, and the differentiation is confirmed by examination of the cerebrospinal fluid.

**27. Infectious Diseases and Heredity.**—De Nittis marshals arguments from botany and natural history to show that certain diseases are capable of modifying the race until the modification becomes a normal condition in the race, as it were, and the lesions characteristic of the disease reappear in the later generations. He cites the potato as an instance, stating that the tubers are not normal growths but are parasitic tumors reproduced by heredity in successive generations. The conditions of nutrition and evolution are modified by the parasite, and these modifications may be transmitted to the descendants without the intervention of new infection.

**29. Ramon y Cajal's Stains for Nerve Tissue.**—Azoulay gives in minute detail Cajal's technic for staining nerve tissue. Fresh tissue is wet with a solution of silver nitrate and is then reduced with some organic reducing fluid, such as pyrogallic acid. A 3, 6 or 8 per cent. solution of silver nitrate is best for the neurofibrils of the invertebrates and gives the best results after two to five days. The vertebrates give better results when a .5 to 1.5 per cent. solution is used, with final results by the fourth to sixth day or even later. Certain animal species have still proved rebellious to the stain, the earthworm, among others.

**30. Apparatus for Chloroformization.**—Jayle gives illustrated descriptions of the four principal apparatus devised to supply chloroform mixed with air, with or without oxygen.

**31. Abortive Diphtheritic Paraplegia.**—The abolition of the kneejerk may be the sole symptom of a postdiphtheritic paraplegia, or the paralysis may exist in an infinite number of forms, ranging from mere paralysis of the velum to the diphtheritic poliomyelitis in acute ascending spinal paralysis.

### Revue de Chirurgie, Paris.

*Last indexed page 1071.*

32 (XXV, No. 3.) La castration contre l'inversion sexuelle. C. Fere.
33 *Entrance of Air into Veins During Operation.—De l'entrée de l'air dans les veines. X. Delore and R. Duteil.

**33. Entrance of Air into Veins During Operations.**—Delore and Duteil report a case of sudden death due to entrance of air into a vein during removal of a very large malignant tumor from the neck of a man of 36. They epitomize the published history of cases in which air has entered a vein during operations, and remark that the rarity of the occurrence is probably owing to the preliminary compression of the blood vessels for provisional hemostasis. The veins in the field of operation should always be compressed to prevent such a contingency as the entrance of air. When the catastrophe has occurred, relief might be obtained by drawing blood from the arm. In any event, when it has been definitely established that air has penetrated into a vein the auricle should be punctured without delay. Experiences with animals and on the cadaver have shown that such a puncture is perfectly harmless, and, if done in time, can not fail to prove as invariably successful as in the experimental tests. The auricle suffers most from the distension, owing to the thinness of its walls. An aspirating puncture of the right auricle would not only relieve the heart but would also aspirate the air from the vein trunks. The needle connected with the suction apparatus is introduced through the third left interspace, about 1.5 cm. from the margin of the sternum, and the point is directed toward the middle of the sternum as soon as it has pierced the wall. The needle will probably traverse a little lung tissue, but the hole is so minute that no harm results. In the case described in detail puncture was done but not until late. The result might have been different if it had been done more promptly.

### Semaine Médicale, Paris.

34 (XXV, No. 10, March 8.) *Cure of Myxedema by Thyroid Grafting.—La guérison du myxédème par la greffe thyroïdienne. H. Cristiani (Geneva).
35 *De l'hémostase provisoire et préventive dans les désarticulations scapulo-humérale et coxo-fémorale et dans les amputations intéressant le quart supérieur des membres. E. Estor (Montpellier).
36 *La stérilisation facultative de la femme. Editorial.
37 (No. 11.) Pathogénie et variétés cliniques du rétrécissement mitral (mitral stenosis). E. Barié.
38 Drinking Water and Milk [illegible] Food and Responsibility for Their [illegible] ilation de l'eau potable et du lait [illegible] etc. Editorial.

**34. Thyroid Grafting in Treatment of Myxedema.**—Cristiani has been continuing the research on this line, described in The Journal, page 846 of the last volume. He has followed to date his patients first operated on, and reports a number of new cases. One was an English girl of 21, of a healthy family and healthy herself until the age of 15, when she began to exhibit symptoms and by the end of two years presented the complete syndrome of myxedema with difficulty in breathing. Partial thyroidectomy in 1902, to relieve the dyspnea, was followed a year later by removal of all the rest of the gland. It was found completely degenerated, and the symptoms of myxedema increased in intensity. They were somewhat relieved by fluid thyroid extract, and it was found that 30 drops, in three doses during the day, kept the patient permanently in a bearable condition, although the slightest fatigue brought on more or less prostration. In July, 1904, 16 pieces of the histologically sound parts of a hypertrophied thyroid gland removed from another young woman were grafted into the patient. Each scrap weighed about 10 cg., and they were implanted in little tunnels burrowing in different directions from four incisions in the skin about 2 cm. long, one between the breasts, two on the posterior axillary line and one in the scar on the neck from the thyroidectomy. One scrap was implanted in the ear to serve as a control. The total thus grafted was about one-tenth of a normal thyroid gland. The manifestations of the myxedema in the cheeks, neck, mammæ and hips vanished at once. There was absolute metamorphosis of the patient in three days as the signs of myxedema rapidly subsided. In order to spare the young grafts, the thyroid extract was kept up for a time in doses of 5 to 20 drops a day. It was found that the patient was kept in the best condition when she took 20 drops a day continuously. This was two-thirds of the amount previously necessary, and it was assumed, therefore, that two-thirds more of thyroid substance were required for a complete cure. In October, 1904, 28 scraps from another patient were implanted as before through four incisions. The results were as prompt and striking as after the first operation, and the patient grew progressively better. The fluid thyroid extract was soon completely suspended and the young girl has since been in apparently perfect health, even through the stress of an ultra-fashionable wedding. Most of the grafts are evident on palpation, and have become durable and functionally capable neo-thyroid organs, the same as in Cristiani's experiments with animals, and in the other experiences related. The latter include the cure of cretinism in a child of 3 after thyroid grafting.

35. **Preventive Hemostasis in High Amputations of Limbs.**—Estor's method of hemostasis is to be applied wherever the slope of the parts renders it difficult to keep the Esmarch bandage from slipping. He takes up a fold in the skin and nips this fold with a pair of forceps. Three or four other forceps are applied in the same way on the fold of skin, which encircles the limb. The Esmarch bandage is then applied, centrally of the forceps, which are held perpendicularly by assistants. After the bandage is in place the forceps are laid over backward on the skin, over the Esmarch band, and a rubber tube is passed through the handles and fastened, thus forming a second loose band above the root of the limb. The tourniquet can then be drawn as tight as desired, the grasp of the row of forceps on the fold of the skin absolutely preventing it from slipping down. The second band is merely to hold the forceps handles loosely in place. In disarticulation of the hip, the external iliac artery can not be compressed by the tourniquet as it lies below the plane of compression, but this is remedied by introducing a pad under the bandage at this point. The femoral artery did not bleed a drop in amputating the upper third of the thigh in a recent case, under this technic, and it has proved equally effective for the shoulder and hip.

36. **Facultative Sterilizing of Woman.**—This editorial states that the idea of operative sterilizing of woman is ancient, but that it was first carried into practice by J. Kocks of Bonn in 1878. He obliterated both tubes with the actual cautery in a consumptive woman, a iv-para. The operation found no imitators, but nineteen years later Kehrer, of Heidelberg, reported section of both tubes after anterior colpotomy in an invalid, who in seven years had borne seven children. Other communications on the subject were published afterward, nearly all German, discussing the best technic for operative sterilization. The editorial concludes by stigmatizing the whole question of facultative sterilization, temporary or permanent, as one with which the physician should have absolutely nothing to do.

### Berliner klinische Wochenschrift.

39 (XLII, No. 8, February 20.) Paralysis from Fright—Recovery Under Psychic-Suggestive Treatment.—Ein Fall von Schrecklähmung. E. v. Leyden.
40 Die klinische Anwendung des Streptokokkenserums (especially as prophylactic). F. Meyer.
41 Ueber dialysiertes Diphtherie-Gift (toxin). P. H. Romer (Marburg).
42 Ein neuer Fall von intrauteriner Skelettierung. A. Hirschberg.
43 *Ein Fall von congenitaler Pulmonal-Stenose, sowie Bemerkungen über die Diagnose des offenen Ductus Botalli. G. Arnheim.
44 Lokale Anaesthesia und Analgetica.—Ozaena. G. Finder.

43. **Congenital Pulmonary Stenosis.**—The diagnosis of patency of the ductus arteriosus is still very uncertain, Arnheim remarks. He describes the findings in a case of congenital pulmonary stenosis and tabulates these of 9 other cases of stenosis with or without a patulous foramen ovale. The behavior and transmission of the sounds in each case are also listed in the tables. Cyanosis was by no means constant in the 10 cases of pulmonary stenosis. The pulse was weaker on the left in one case, and on the right in another; in the others it was even and regular. The murmur was not always systolic. In the case with persistent ductus arteriosus the murmur was presystolic, diastolic, loudest in the third left interspace, and the pulmonary sound was strongly accentuated but was not heard from behind. In 40 cases of pulmonary stenosis on record, all the fetal passages were obliterated in only 2. In 5 the septum was normal but the foramen ovale was patulous.

### Centralblatt f. Chirurgie, Leipsic.

*Last indexed page 1073.*

45 (XXXII, No. 10, March 11.) Ein Fall von Milzexstirpation wegen Aneurysma der Arteria lienalis (splenectomy). V. Winckler.
46 New Pelvis Support.—Eine neue Beckenstutze. A. Hofmann (Freiburg).
47 (No. 11.) *To Facilitate Vaginal Hysterectomy in Case of Thickened Cervix.—Eine Erleichterung der vaginalen Uterusextirpation bei verdickter Cervix. C. Lauenstein.

47. **To Facilitate Vaginal Hysterectomy.**—When the cervix is abnormally thick and large, Lauenstein removes first the lower segment of the uterus. This is done by an oblique incision as for Schröder's supravaginal high amputation of the cervix. The rest of the uterus then shells out with remarkable ease.

### Centralblatt f. Gynäkologie, Leipsic.

*Last indexed page 1073.*

48 (XXIX, No. 10, March 11.) Acute Edema of Cervix During Pregnancy.—Fall von akutem Odem der Muttermundslippen während der Schwangerschaft infolge Koprostase. L. Seitz.
49 *Avoidance of Bladder Disturbances After Gynecologic Operations.—Die Vermeidung von Blasenstörungen nach gynäkologischen Operationen. A. Gutbrod.
50 "Studien zur Physiologie des Uterus." E. M. Kurdinowski.
51 (No. 11.) Ueber Facialis- und Hypoglossus-Parese nach Spontangeburt (after spontaneous birth). A. Stein.
52 Die Symphyseotomie ist eine chirurgisch inkorrekte Operation. L. Gigli.

49. **To Prevent Bladder Disturbances After Gynecologic Operations.**—Gutbrod ascribes such disturbances to pressure on the bladder from the previously misplaced uterus. He counteracts this by leaving a catheter in the bladder for five days. When removed after this period, the bladder has adapted itself to the new conditions and there is no further trouble. He has never had a failure in fifty cases thus treated. He leaves the catheter in place for eight days after a colporrhaphy; drainage of the bladder in this way during the first week prevents recurrence later.

### Deutsche medizinische Wochenschrift, Berlin and Leipsic.

53 (XXXI, No. 7, February 16.) *Die Prophylaxe und Abortiv-Behandlung der Gonorrhoe. E. Finger.
54 Sacrifice of Living Child in Behalf of Mother.—Zur Frage der Opferung des lebenden Kindes zum Vorteil der Mutter. O. v. Herff.
55 Erfahrungen auf dem Gebiete der Chirurgie der Gallenwege (of biliary passages). Riese.
56 *T[illegible] B[illegible]lli.—Steigerung der Ag-[illegible] und ihr Wert für die [illegible]
57 *Di[illegible] le (alcohol dressings). Brugger.
58 (No. 8.) *Ueber Indikationen und Methoden der fakultativen Sterilisierung der Frau (induced sterility of woman). O. Sarwey (Tubingen).
59 *Ueber Misch-Narkosen im Vergleich zur reinen Chloroform- oder Aether-Narkosen. B. Müller.
60 Einige Fälle von Perforation des Duodenums und Magens (of stomach). O. Croce.
61 Zur Abortiv-Behandlung der Gonorrhoe nach Blaschko. F. Block.
62 *Light Phenomena After Rubbing Skin with Incandescent Lamp.—Licht-Erscheinungen nach Reibung der menschlichen Haut mit Glühlampen. Sommer.
63 Hemostasis with Jet of Superheated Air.—Ueber Blutstillung an parenchymatosen Organen (Leber, Nieren) mittels Heissluft Dusche. H. Schlee.
64 Infection from Kissing the Hand.—Influenza und Handküssen. A. Duhrssen.
65 Die Sanatorium-Frage in Italien. M. Segale.

53. **Prophylaxis and Abortive Treatment of Gonorrhea.**—Finger commences a systematic course of treatment in every case of recent infection. The more recent and the slighter the symptoms, the stronger the concentration of the silver salt he uses, while with established lesions he uses one-quarter this strength. In regard to individual prophylaxis, experience has demonstrated that none of the measures recommended to date are either absolutely reliable or harmless.

56. **To Enhance Agglutinability of Typhoid Bacilli.**—Schrwald announces that stems of typhoid bacilli which do not agglutinate readily can be modified in this respect by being grown on sterile potato or on media containing potato juice. They acquire the property of becoming agglutinated much more rapidly and thus hasten the response to the test.

57. **Alcohol Dressings.**—Brugger indorses the advantages of the permanent alcohol dressing for pain, inflammation and suppuration of all kinds. The dressings must be large and must be kept moist, but not wet, with the alcohol. Vollbrecht applies the alcohol on a bag of sifted sawdust. This fits like a soft cushion over the part and keeps moist for about twenty-four hours. The pain is relieved, the inflammation subsides and the general effect is very favorable. The alcohol dressings are as useful for the hospital and army surgeon as for the general practitioner and in dispensary practice. There are no inconveniences from their use except the trifling and transient puckering of the skin and the danger of fire.

58. **Facultative Sterilization of Women.**—The editor of the *Wochenschrift* commissioned Sarwey, professor of gynecology at Tübingen, to present in concise form the present status of the question of facultative sterilization, how far the physician is justified in performing it, under what circumstances it appears to be necessary and how it can be accomplished. He accepts as indications for it: 1. A pelvis so contracted that cesarean section will probably be required, or one in which a previous childbirth has been very difficult; 2. A general and local affection accompanied by general depression, with the probability of aggravation by a pregnancy. This list includes osteomalacia, psychoses, especially those of a melancholic or maniacal character, chronic heart, lung, intestine or kidney disease, severe anemic and cachectic conditions and disturbances of the general health such as may be induced by various physical anomalies. The third indication he calls the "social." He remarks that this indication is not generally recognized, but that all the objections urged against it are confronted by the fact that when the family keeps increasing continuously year after year in a home where poverty rules, the mother's strength and health become undermined and she is unable to rear and care for her children properly. The excessive number of children in the homes of the poor is, in some cases, he believes, the direct cause of the crime and ruin that overwhelm certain families. The prevention of such tragedies by prophylactic instruction Sarwey regards as a grateful task for the family physician, after he has maturely weighed all the circumstances and realizes his responsibility. A fourth indication for facultative sterilizing of the wife is afforded by a grave family history of tuberculosis or insanity, when the physician's advice has not been heeded that such persons should not marry. Sarwey reviews in detail the operative and other means of preventing conception, temporary or permanent, chemical, mechanical and surgical. He thinks that the ethics and technic of facultative sterilization of woman should be taught in the medical schools and incorporated in the textbooks. He remarks that the present abuse of temporary measures to prevent conception might be controlled by more stringent legislation against them, allowing their sale only on a doctor's prescription.

59. **Mixed Anesthetics.**—Müller reports the results of experiments on animals, mostly dogs, anesthetized with various anesthetics in turn, chloroform, ether, etc., with subsequent investigation of the condition of the parenchymatous and other organs. The anesthesia proceeded more smoothly sometimes when two or more different drugs had been used, but the toxic influences on the organs were much more pronounced than with one alone. The toxic action of the two drugs seemed to be superposed with a cumulative action, while the by-effects of the drugs had an unmistakably depressing influence besides.

62. **Light Phenomena After Rubbing Skin with an Incandescent Lamp.**—When a new incandescent lamp, with the current turned off, is rubbed on the skin, or on wool or fur, light is generated. The light is sufficient to take the outline photograph of solid objects. The amount of light generated varies with different parts of the body and with different persons. Sommer thinks that the phenomenon may repay further study of the physiologic conditions as influencing these differences.

### Münchener medicinische Wochenschrift.

66 (LII, No. 9, February 28.) *Ueber chemische Befunde bei Nephritis (chemical findings). T. Rumpf.
67 *Beitrag zur Behandlung der myeloiden Leukämie mit Röntgen-Strahlen (X-Rays). K. Schleip and W. Hildebrandt.
68 *Extraction of Foreign Body in [illegible]. Fremdkörperextraktion im Oesophagus [illegible]. H. Starck.
69 *[illegible] Die Diagnose und Extraktion von Fremdkörpern in der Speiseröhre mit dem Oesophagoskop. A. Reizenstein.
70 *[illegible] Foreign Body. [illegible] eines Fremdkörpers. O. Franck.
71 Value [illegible] of Bladder and Ureters.—Wa[illegible] Verletzungen der Blase und der [illegible]
72 *Zur [illegible] B. Müller (Hamburg).
73 Zur endermatischen Anwendung des Guajakols. Hecht.
74 Ueber innerliche Darreichung von Lysol bei Anämie und [illegible] den Appetit anregende Wirkung. F. Burger.
75 Tuberkulose und Gravidität. M. v. Holst.
76 Zur Frage der therapeutischen Dosierung der Röntgen-Strahlen (dosage of X-rays). F. Dessauer.

66. **Chemical Findings in Nephritis.**—Rumpf here relates the results of chemical study of cases of nephritis, the research extending over the years since 1894. The blood, kidneys, heart, liver and spleen were exhaustively analyzed postmortem. Among the facts thus ascertained is the unmistakable retention of organic substances in the blood and tissues in the early stages of chronic nephritis. The proportion of water was below normal while the proportion of solids was unusually high. In the later stages this finding is less distinct. The proportion of sodium chlorid in the kidney of adults was much above that in the blood and other organs in many cases. This finding was particularly marked in certain cases of nephritis, but not invariably in all. In many cases of nephritis the proportion of sodium chlorid in the blood and tissues was quite high, but not the maximum encountered. In certain cases of chronic nephritis, the percentage of sodium chlorid in the blood and other organs was rather below than above normal although associated with edema, albuminuric retinitis and uremic phenomena. Pericardial, pleural and peritoneal effusions in case of nephritis, not complicated with dropsy of cardiac origin, were sometimes unusually rich in sodium chlorid and sometimes not, so that the origin of the effusion can not be ascribed to retention of sodium chlorid. The proportion of sodium chlorid in 9 cases of peritoneal effusion without nephritis (6 cases of cirrhosis of the liver, one of tuberculosis, and one of a complicated heart defect), was considerably higher than was encountered in any case of nephritis The retention of sodium chlorid is not so important for the dropsy of kidney disease as has been lately proclaimed, although there is no doubt that it has a certain importance from this point of view. There is retention of various other salts as well as of the chlorid; potassium, sodium, calcium and magnesium salts are also retained. The proportion of the latter in the blood was found remarkably high both in acute nephritis and in the cases of nephritis complicated with arteriosclerosis The frequent increase in the mostly organically bound potassium confirms the assumption of retention of organic substances in the blood and tissues.

67. **Roentgen Treatment of Myeloid Leukemia.**—The spleen in the case reported by Schleip extended a hand's breadth to the right of the linea alba and reached down to the region of the symphysis. It was firm to the touch but not painful. The blood findings were those of typical myeloid leukemia, with symptoms first noted two and a half years before. The changes in metabolism and in the composition of the blood are tabulated. They show great improvement under the Roentgen treatment. The exposures aggregated 800 minutes in the course of four months, about 650 minutes being devoted to the spleen and the rest to the bone marrow. At the end of this time the red corpuscles numbered 3,600,000, the leucocytes 28,600, and the hemoglobin 80 per cent.; the patient felt and looked extremely improved. The course was supplemented by arsenic. The treatment was suspended at the end of four months on account of symptoms on the part of the intestines and peritoneum, diarrhea and ascites, first commencing with the arsenic.

68-69. **Esophagoscopy.**—Starck related a few months ago his experience with esophagoscopy in 65 cases in which it afforded extremely valuable diagnostic information. He here describes 4 cases in which it allowed the extraction of a foreign body, and mentions that 73 instances of the kind have been published. He urges it as a routine measure, in every case of an impacted foreign body, in the place of any other maneuver. If the extraction through the esophagoscope is not feasible, then gastrotomy should follow without delay.

Reizenstein echoes his recommendation of the esophagoscope, and urges that it should be used at once, before damage has been done to the wall of the organ by the foreign body. He relates 6 instructive instances of its use.

70. **Inflation of Esophagus to Promote Passage of Foreign Body.**—Franck tells of a case in which a chunk of tough meat had become impacted in the esophagus and caused much distress. It was on shipboard, and no means of relief were at hand. He finally applied the principle used in inflating the stomach for diagnostic purposes. He mixed the two parts of an effervescent powder with a little water and had the patient drink each separately. He held his mouth and nose so that the fluid could not escape. Palpation of the stomach showed that the occlusion of the esophagus had been complete as none of the gas generated found its way into the stomach. After a brief, violent effort, the patient felt the chunk pass on downward into the stomach.

72. **Improved Technic of Laparotomy.**—Müller recommends what he calls his "laparotomy cuff" to prevent infection of the lips of the wound. It consists of rubber tissue made with parallel narrow strips of steel, about 3 cm. apart. Two pieces of the rubber tissue are cut, each a little longer than the length of the wound. They are bent over the edge of each lip of the wound, the steel strips being bent like a stirrup, the cuff thus fitting close over the edge of the wound and for some distance back over the skin above and under the peritoneum below. If desired, a string is passed through a hole in the longer end of each steel strip above the skin, the ends of the strings being brought together and a weight fastened to them, serving as an automatic retractor for each lip of the wound. The weights are not necessary, as the elasticity of the bent steel strips holds the cuff in place. It protects the wound from all contact with instruments, hands, forearms, or infecting material, and against every possible infection from the exterior, from the air, from droplets, etc. If the cuff becomes soiled it is easy to replace it with a clean one. The sheet of rubber is made by the yard with the flexible metal strips running through it at 3 cm. intervals. The long end of each metal strip measures about 8 cm., the shorter end about 5, and the central part, bent at right angles, measures from 3 to 5 cm. The short end of the strip terminates in a knob or plate, to prevent injury of the peritoneum. The short end is bent inward a little to ensure an elastic hold on the abdominal wall.

### Therapeutische Monatshefte, Liebreich's, Berlin.

*Last indexed page 1233.*

77 (XVIII, No. 12.) Serum Treatment of Hay Fever.—Zur Serumbehandlung des [illegible]
78 Night Sweats in Phthisis. [illegible] Tuberkulose und dere [illegible]
79 Urotropin als Prophyl[illegible] (scarlatinal). K. Patschkowski.
80 *Zur Technik der Bandwurmkuren (tape-worm expulsion). I. Boas.
81 Zur Pathologie und Therapie der Pädatrophie (atrophy of di[illegible] A. Hecht.
82 [illegible] Brüche (incarcerated hernia). [illegible]
83 *Detection of "Occult" Blood with $H_2O_2$.—Blutnachweis durch Wasserstoffsuperoxyd. F. Schilling (Leipsic).

80. **Treatment of Tape Worm.**—Boas slights the preliminary preparation of the patient and uses a much smaller dose of the vermifuge than some consider necessary. He gives from 5 to 8 gm. of extract of male fern in the morning, fasting. Six hours later—not before—he gives the purgative, preferring a "bitter water" for the purpose. Oil is liable to promote the absorption of the fern extract, and calomel is unreliable in these cases. He relates several instances to show the success of this simple technic after the failure of ten or more previous "tape-worm treatments." When the patient vomits easily, he pours the extract into the stomach in the form of a thin gum arabic emulsion. In one instance he injected morphin at the same time.

83. **Detection of Blood with $H_2O_2$.**—Schilling calls attention to the value of the information afforded by addition of a few drops of $H_2O_2$ to any substance in which the presence of blood is suspected. Tiny bubbles form in the presence of blood, and rise up in foam. These bubbles are always clear as water; the substance being tested becomes decolorized in the bubbles. He uses a 20 per cent. solution of $H_2O_2$. Tests have shown that the bubbles still form at a dilution of the blood long past the point of visibility, even at 1 to 1,600. Clinical tests with stomach content, feces, etc., demonstrated that this simple test for "occult hemorrhage" deserves to rank with the guaiac or aloin-turpentine test.

## Books Received

Acknowledgment of all books received will be made in this column and this will be deemed by us a full equivalent to those sending them. A selection from these volumes will be made for review, as dictated by their merits, or in the interests of our readers.

Diseases of the Skin, their Description, Pathology, Diagnosis and Treatment, with Special Reference to the Skin Eruptions of Children and an Analysis of 15,000 Cases of Skin Disease. By H. Radcliffe-Crocker, M.D. (Lond.), F.R.C.P., Physician for Diseases of the Skin in University College Hospital. Third Edition, Revised and Enlarged. Special Illustrated Edition, with 76 Plates and 112 Illustrations. Vols. I and II. Cloth. Pp. 1466. Price, $8.00 net. Philadelphia: P. Blakiston's Son & Co. 1905.

Recurrent Effusion into the Knee Joint after Injury, with Especial Reference to Internal Derangement Commonly Called Slipped Cartilage. An Analysis of 750 Cases. A Clinical Lecture Delivered at St. George's Hospital. By Sir William Bennett, K.C.V.O., F.R.C.S., Senior Surgeon to St. George's Hospital. With 11 Illustrations. Cloth. Pp. 28. Reprinted from the *Lancet*. New York and Bombay: Longmans, Green & Co. 1905.

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## Original Articles

## SOME INTERESTING AUTOPSY FINDINGS IN EPILEPTICS.*

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[From the Pathological Laboratory of the Craig Colony for Epileptics.]

When I assumed the duties of pathologist to the Craig Colony, a year ago, the task before me of studying the pathology of epilepsy seemed a hard one, promising but little fruit. That such a pessimistic feeling had justification will be seen from the following passage by an author of such repute as Gowers,[1] and whose name is so intimately associated with the subject of epilepsy:

> Of the histologic changes revealed by the microscope, most of those which are not common, apart from symptoms, are apparently of secondary origin, the result and not the cause of the convulsions; and the various changes that have been described and have been supposed to be related to the origin of the disease have probably no connection with it, and do not even deserve enumeration. No greater significance can be ascribed to the induration of the cornua ammonis (pes hippocampi) to which weight has been attached by Meynert. Nor is there at present much likelihood that our knowledge will be more definite. The changes in the nerve elements are probably of that molecular character which is revealed only by altered functions and deludes the most minute research.

With such a basis to start from, the prospect of throwing new light on the pathogenesis of epilepsy along the lines of pathologic anatomy and pathologic histology seemed very small indeed. Nevertheless, an expectant neutral attitude of unprejudiced observation seemed indicated and has brought forth some gratifying results, showing that the field of pathologic anatomic and pathologic histologic research is not altogether exhausted and that quite a little may be learned yet about epilepsy from investigation in this direction.

In a recent paper, Dr. M. Allen Starr[2] makes the statement that a careful review of many facts offered by recent advances of our knowledge of the nervous affections seems to him to demonstrate the fallacy of the prevailing opinion and to prove conclusively that epilepsy is usually, if not always, an organic disease.

Whether and to what extent Dr. Starr's statement is borne out by the facts to be presented below is left to the judgment of the reader. The said facts are the outcome of experiences gained in sixteen autopsy cases of "epilepsy," in thirteen of which the brain was examined.

It should be said here that it is more appropriate to speak of epilepsies than of epilepsy, since the variety of the forms of this disease, if we so choose to call it, is so great that they ought to be kept apart. Indeed, it is my conviction, expressed in a previous publication,[3] and supported by such an author as Féré, that we should rather consider epilepsy as a symptom than as a disease, which symptom may accompany pathologic processes of different nature and location.

If we put ourselves on this broad and neutral basis, then the anatomic findings here presented may find their due appreciation and, eventually, classification.

Before proceeding to the enumeration of the autopsy findings, a word should be said regarding the difficulties that assail us in attempting to obtain material for pathohistologic investigations.

In the first place, it is very often difficult to obtain an autopsy. This difficulty has been greatly diminished by the legislative efforts of Dr. William P. Spratling, which, pursued through several years, have finally borne fruit. The result of this effort is the passage of a law allowing, under certain restrictions, autopsies on all indigent cases dying at the colony, and affording thus a greater number of autopsies than it was possible to obtain before it was passed. While the restrictions above mentioned are still quite considerable, the passage of this law is a great step in advance, the breaking of ground for further gains in that direction. However, even under this law the autopsy has sometimes to be made as late as forty-eight hours after death, which would, under ordinary circumstances, entirely spoil the nervous system for histologic investigations. This impossibility of obtaining an early autopsy being of very frequent occurrence, means had to be found of preserving the central nervous system preliminarily as soon as possible after death, so as to make the material available for investigations even under such unpropitious circumstances. This was done by injecting into the dural sac a 12 per cent. solution of formalin by means of lumbar puncture and of puncture through the foramen magnum. This method, which I described in the *Medical Record*, July 9, 1904, proved very efficient as shown by the fact that pieces from the cortex of the motor region, cerebellar cortex, caudate nucleus and the medulla of a brain preserved in such manner[4] reacted beautifully to the neuroglia stain. This, in view of the rapidity with which neuroglia otherwise undergoes postmortem decomposition, shows the value of the method.

The further advantage of the method is that it hardens at the same time and thus preserves the shape of the different structures. It shares this virtue with the method of Drs. A. Meyer and Dunlap practiced at the Pathological Institute of the New York State Hospitals, namely, hardening of the brain by means of injecting 10 per cent formalin solution into the ascending aorta, after tying off the thoracic aorta. While this latter method is to be preferred when an early autopsy can be made and when expense plays no rôle, the subdural injection requires much less formalin and is, therefore, more economical. Moreover, it leaves the body unmutilated.

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* Read in the Section on Nervous and Mental Diseases of the American Medical Association, at the Fifty-fifth Annual Session, June, 1904.

[1] Gowers: A Manual of Diseases of the Nervous System, 2d Edition, Philadelphia, 1898, page 733.

[2] M. Allen Starr: Is Epilepsy a Functional Disease? Jour. of Nerv. and Men. Dis., vol. xxxi, March, 1904.

[3] B. Onuf: Some Features of the Epileptic Attack, Amer. Medicine, vol. vii, No. 5, p 183, Jan. 30, 1904.

[4] The preliminary subdural formalin injection was made one hour after death, the autopsy 43 hours after death.

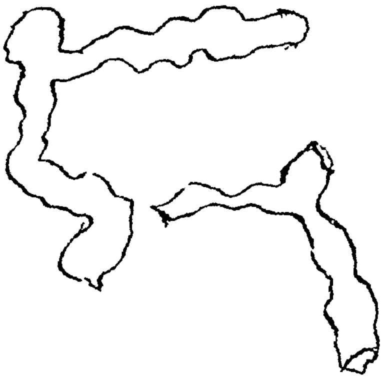

Fig. 1.—Tortuosity and dilatation of capillaries. Drawn from a specimen with camera lucida.

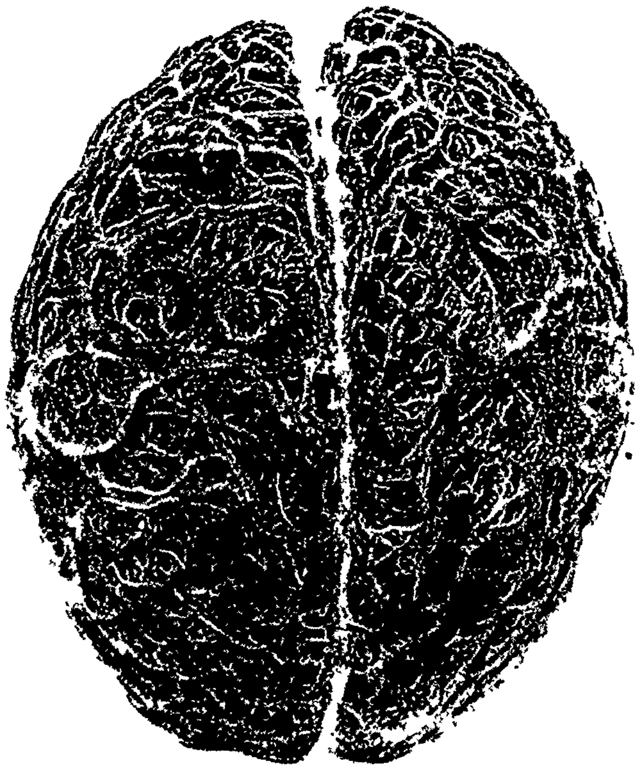

Fig. 2.—Case 13, showing thickening of the pia over the fronto-parietal lobes.

I proceed now to the enumeration of certain changes found in the deceased epileptics on whom I performed the autopsy. The total number from June 1, 1903, until June 1. 1904, amounted to 16.

It is not intended here to enumerate all changes found, but only those which, by their frequency, aroused attention, namely, first, valvular changes of the heart; secor [illegible] nal dilatation and tortuosity of the capilla[illegible] larly those of the lungs and of the kid-[illegible] ate pneumonia; and fourth, changes in [illegible] specified below.

[illegible] s sake, the changes found have been tab-

VALVULAR LESIONS.

The number of cases in which an autopsy of the heart was made was 15 (since in Case 17 only a brain autopsy had been permitted). Of these 15 were 12 who showed distinct changes of one valve or the other, or 80 per cent., while in the thirteenth case (20 per cent.), they were so slight that we excluded it from consideration.

The valve most frequently affected was the mitral, which, indeed, was involved in every case in which there was a valvular lesion at all; i. e., 12 times out of 15.

Next in frequency was the disease of the aortic valve; namely, in 5 cases, or 33 per cent., marked involvement, while in 3 cases (Cases 4, 13 and 16) it was of very slight extent or doubtful.

Less frequent was involvement of the tricuspid, which was distinctly diseased in 3 cases (20 per cent.) and slightly, if at all, in the fourth case (Case 13).

By excluding the cases in which the changes were slight or doubtful, we find the respective valves affected in the following numerical proportions and combinations:

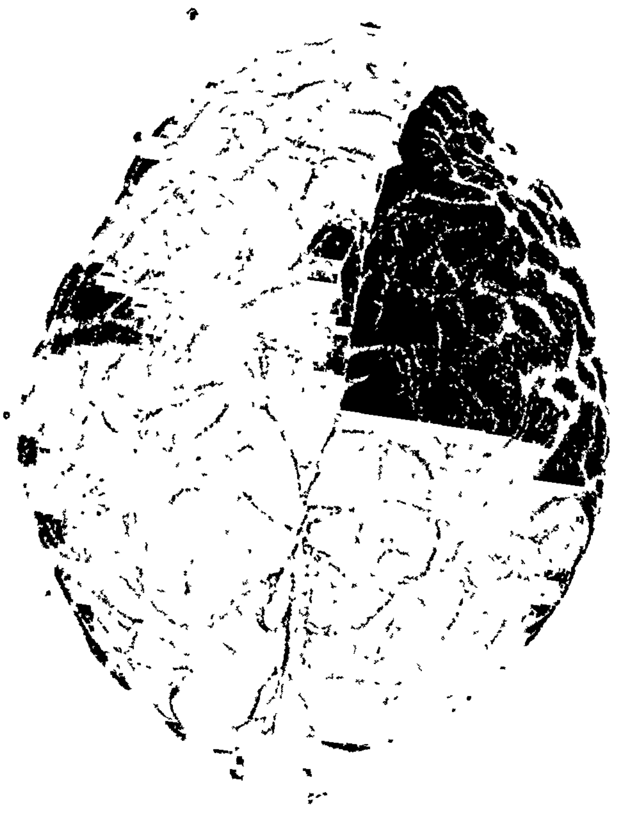

Fig. 3.—Case 12 Circumscribed atrophy of the right frontal lobe.

| | Cases. | Per cent. |
|---|---|---|
| Mitral valve alone, diseased | 6 | 40 |
| Mitral valve plus aortic valve, diseased | 3 | 20 |
| Mitral valve plus tricuspid valve, diseased | 1 | 6.6 |
| Mitral valve plus tricuspid plus aortic, diseased | 2 | 13.3 |
| Total | 12 | 79.9 |

As to the nature of the change, Case 22 ought to first be thrown out as presenting changes of a different character than the rest. In this case the mitral valve showed a wart-like granulation of soft consistency. In all other cases the changes consisted chiefly in a shortening of the valve and a thickening and hardening of its margin. The appearance was most like that of atheroma. No erosions nor calcareous deposits were present on the surface of the valve.

As to the rôle that age might play in the production of these changes, a look at the table shows that only in a small percentage senility could be considered the cause, even if liberal allowance were made in this regard. In Case 15, the age was 94; in Case 9, it was 61; in Case 10, it was 50; in Case 6, it was 42, and in Case 21, it was 35. In these last two cases, senility can really not be considered, and all others were considerably beneath 35, so that senility can not account for the majority of the cases. Another issue to be discussed was whether the presence of these valvular changes stands in any relationship to the severity and number of attacks of the respective patients. For the suggestion of investigating this particular point, I am indebted to a discussion at a conference at Buffalo of the Physicians of the Western State Hospitals of New York, held in May, 1904. Before this conference I read a paper on the same subject, and this suggestion was called forth when I brought up the question whether the valvular changes reported were to be considered as primary or as secondary; i. e., produced by the severe strain accompanying severe seizures. In following up this idea, I tried to calculate, so far as possible, the total number of grand mal and petit mal attacks during the life of each patient. That such a calculation can only be approximate is evident. In making it, chief reliance had to be placed on the observations made at the colony, since here each attack, so far as feasible, was recorded. The table gives the result of this attempt, and, on the whole, it does show an unusually large number of severe attacks: i. e., grand mal attacks. In only one case (Case 15) the total number of grand mal attacks was too small to count as an etiologic factor and, in this case, the age of the patient (94 years) warrants us in considering the changes as senile atheromatous ones. (Case 22, as will be remembered, was excluded, as there the changes were of a totally different character.)

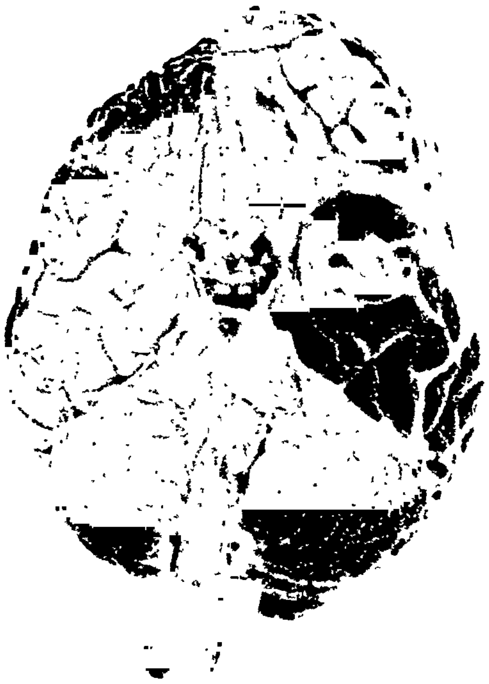
Fig. 4.—Case 12. Circumscribed atrophy of the right frontal lobe.

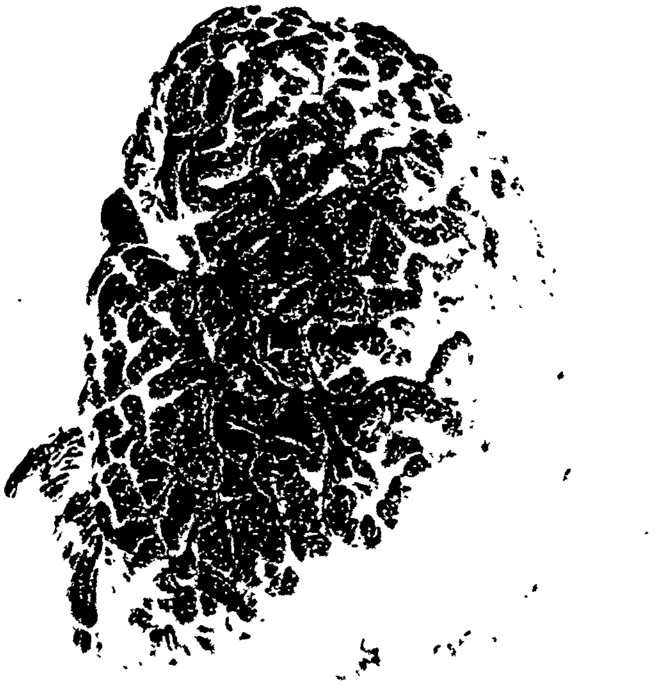
Fig. 5.—Case 17. Hydrocephalus. Left lateral view. Ventric[illegible] empty.

Barring this case, evidence is, therefore, considerably in favor of looking on the valvular changes as secondary and as brought about by the strain to which the circulatory system is put in a grand mal seizure.

Histologic investigations of these valvular changes have not sufficiently advanced to permit a report of the findings.

### PATHOLOGIC CHANGES OF THE CAPILLARIES.

In several of the autopsy cases, the capillaries of certain organs, particularly of the lungs and kidneys (at least, I have investigated these chiefly) presented striking changes; striking not only by their intensity, but also in their extent, since the majority of the capillaries in these organs were thus involved. The changes consisted in tortuosity of the capillaries and of aneurismal dilation of the same, such as is illustrated in Figure 1.

In all the cases so far examined in which these capillary alterations were found, valvular changes were also present, and I was first inclined to consider them as secondary to these. It now seems more probable, however, that they are both due to the same cause; i. e., the tension of the circulatory system in severe seizures.

### ACUTE PNEUMONIA.

How frequent a chief or contributory cause of death acute pneumonia was, is evident from the table, which shows the presence of this disease in eight of the fourteen autopsy cases in which the lungs were subject to examination; i. e., in 58 per cent. On[illegible] was an aspiration pneumonia: the others wer[illegible] monias, with perhaps one exception. [illegible]

In some of the cases the microscopic [illegible] pneumonia was supplemented by histolog[illegible] tion which confirmed it in [illegible] cerebral axes easily shows. In Case 21 (Fig. 17) it was detached to some extent from the remainder of the thalamus, and in Case 20 (Fig. 16) this separation was still more marked, giving the two anterior tubercles an almost pedunculated appearance. It is true that this latter case was the one containing the cerebellar cyst.

The external geniculate body seemed much attenuated and the internal geniculate body unusually small in a number of cases. However, in this respect I would reserve judgment until further investigation.

The details as to which part was affected in each particular case are also recorded in the table.

A point worthy of note is, further, the disproportion between the size of the corpora quadrigemina on one side and the thalamus on the other. A look at the figures of the different cases shows the differences of the *proportion between these two structures. For illustration*, two extreme cases may be picked out. In Case 18 (Fig. 14), for instance, the mass of the four corpora quadrigemina is almost the size of the left thalamus. In Case 19 (Fig. 15), on the contrary, this mass is only about one-quarter of the size of the left thalamus. The pineal gland here masks the picture somewhat, but leaves, nevertheless, no doubt as to the discrepancy, in this regard, of the two cases mentioned.

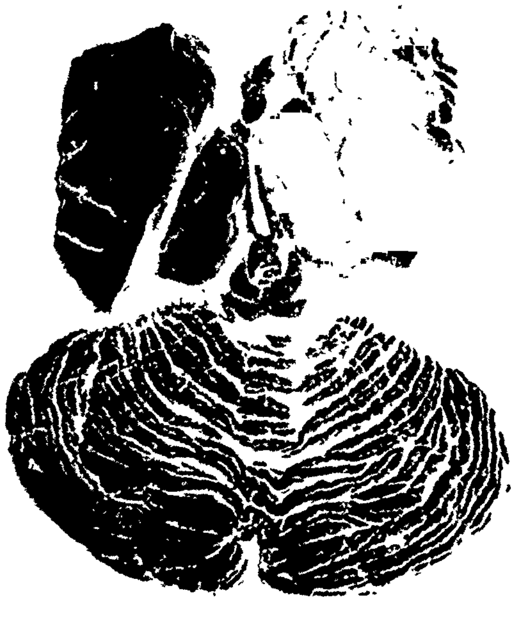

Fig. 10.—Case 16. Left thalamus smaller than right. Note also the difference in size of anterior tubercles of the thalamus. Marked shrinkage of convolutions of the superior vermis cerebelli and adjoining parts of the cerebellar hemispheres.

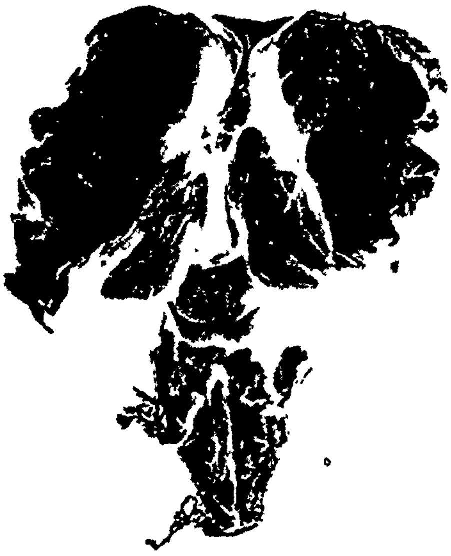

Fig. 11.—Case 6. Also left thalamus smaller than right and difference in size of anterior tubercles of thalamus.

It is very probable that in these cases it is the size of the thalami and not that of the corpora quadrigemina that is at fault, nevertheless a reduction in size also of the corpora quadrigemina cannot be quite excluded *a priori*.

The great frequency and intensity of the changes found in the thalamus and cerebellum call for special discussion of their possible significance, particularly that of the thalamic changes.

### EPICRISIS OF THE THALAMIC CHANGES.

A question that first suggests itself in relation to the observed findings in the thalamus is whether such do not represent perfectly normal conditions, *i. e.*, whether it is not perfectly common and normal to find such differences in size between the two thalami or between parts the [illegible] as have been here reported. This question it is saf [illegible] tive. since, if such marked asymmetries and proportional differences were common, they could not have escaped observation by many authors and would therefore be well known.

Moreover, the shriveled appearance of the surface of the thalami observed in some cases, as also the wedge-like attenuation of the pulvinar seen in a number of the cases, suggest a process of shrinkage rather than a congenital difference of proportion; *i. e.*, an unequal development. So much can be said previous to histologic investigation.

The changes being acquired ones, the other question to consider is whether they are simply *accidental accompaniments*, or whether, on the contrary, they have some bearing on the epilepsy, direct or indirect. The conception that they are accidental can hardly be maintained, in view of their great frequency. But, on the other hand, if we assume a relation between these thalamic changes and the epilepsy, three possibilities must again be weighed against each other:

1. The *alterations in the thalami might form part of* some general process and yet not have anything to do with the causation of the epilepsy itself. To give an illustration: The thalamic pathologic process might be part of a process affecting the brain *in toto*; i. e., diffusely; but only that part of this diffuse process involving the cerebral cortex would have anything to do with the causation of the epilepsy. If this were so, such processes would certainly deserve to be known.

2. The thalamic lesion might be entirely secondary, the result of multiple seizures; whether such result is in the nature of inflammatory processes, or of circulatory disturbances, or of toxic changes produced by each attack.

3. The third possibility is that of a direct bearing of the pathologic process of the thalami to that of the epilepsy. As we have grown used to consider epilepsy as a cortical disease, the conception that the thalamus may have something to do with it seems like a step backward; i. e., a relinquishment of ground gained; yet the recent advances in our knowledge of the anatomic connections of the thalamus make it appear possible to ascribe to the thalamus some rôle in the provocation of epileptic seizures without denying the instrumentality of the cortex in their production.

H. H. Hoppe[6] in discussing the anatomic connection and physiology of the thalamus makes the following statement:

> It has been established as an anatomic fact, by the researches of Dejerine, Long, Probst, von Monakow, Koelliker, Bechterew, Flechsig, Schäfer and Spiller, that, first, the thalamus is connected by fibers with a large section of the cortex, and reversely that the cortex is connected with the thalamus opticus; and that, second, all the centripetal sensory tracts end in the thalamus.

Hoppe, furthermore, quotes Monakow as having the view that the optic thalamus is an important link in the central apparatus for the perception of impressions made on the special senses and the skin, more especially on the latter.

These facts lend considerable strength to the speculation that an excess of stimulation proceeding from the thalami to the cortex—as might occur in an irritative pathologic process of the thalami—would lead to an overcharge of the elements of the latter, which would from time to time be relieved by an explosive discharge of the accumulated surplus of nerve energy.

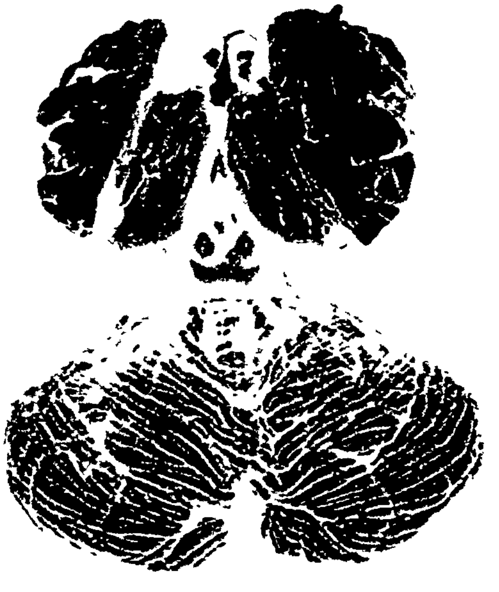

Fig 12.—Case 5. Thalamus and geniculate bodies apparently free from changes.

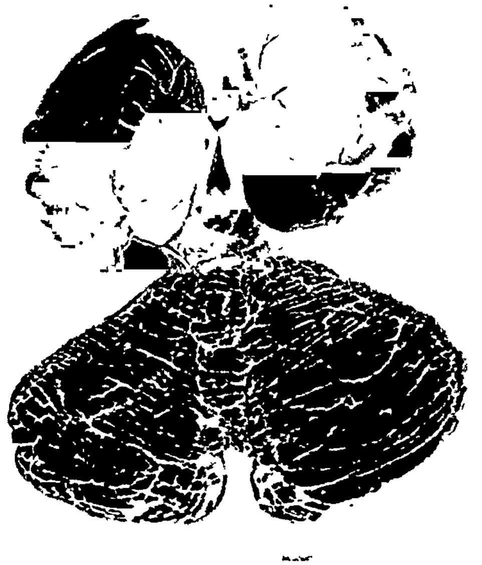

Fig 13.—Case 13. Right thalamus smaller than left, and marked attenuation of pulvinar thalami on both sides.

While this theory for the present must remain a speculation, it is strengthened by the result of physiologic experiments made by Ziehen.[7] This author first refers to former experiments, in which he states to have proved that in the dog the clonic part of a convulsion as brought about by faradic cortical excitation was of cortical origin, its tonic part and the running movements, however, of infracortical origin. He then proceeds to a description of his last experiments, the chief results of which concerning us here were as follows:

> Superficial mechanical and weak faradic excitation of the thalamus was without effect. Strong faradic excitation owing to coexcitation of the internal capsule causes tonic contractions (of face, forelegs and hindlegs). Severance of the thalamus (by cutting) in the anterior level causes only a momentary startling movement (*Zusammenfahren*); severance in the posterior levels leads to a mild upheaval (*Aufsturmen*) of the animal and an excessive running movement, the latter being occasionally followed, after a short pause, by a tonic convulsion, due, probably, to secondary excitation of further removed parts.
>
> Mechanical or faradic excitation in the domain of the anterior corpora bigemina (as well as the external geniculate body) produces the same morbid running movements, but in markedly exaggerated degree, often accompanied by cries (Schreien). They outlast the excitation by several minutes Frequently a tonic convulsion follows.
>
> Mechanic and faradic excitation as well as severance (by cutting) in the domain of the posterior corpora bigemina give rise to an extreme tetanic convulsion outlasting the excitation by a long period.

Ziehen concludes from these experiments that in the region of the optic thalami and of the corpora quadrigemina must be situated centers for higher co-ordinated movements. In the above experiments they were probably not excited directly, but reflexly. He deems it probable that the intracerebral pathway of the optic nerve might play a conspicuous part in this. Also the convulsion produced from the posterior corpora bigemina is probably in the nature of a reflex.

No matter what importance we lend to these experiments of Ziehen—and it seems to me that they deserve some attention—the thalamic changes found in such number in the brains of deceased epileptics at the Craig colony demand an explanation. They show that it is one-sided to exclusively investigate the cortex or association tracts and no other structures of the brains of epileptics. It is but fair to admit that the majority of cases forming the basis of this report were advanced ones with marked mental deterioration. Nevertheless, they may also be found in more recent cases; at any rate, such should be investigated in this regard.

Which of the three possibilities of interpreting the thalamic changes will prove to be the correct one, or whether a combination of one with the other will prove the right solution, must remain a subject for further research and thought.

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[6] H. H. Hoppe: A Clinical and Pathological Contribution to the Study of the Central Localization of the Sensory Tract, Jour. of Nerv. and Men. Dis., vol. xxxi, May, 1904, p. 281.

[7] Ziehen: Zur Physiologie der subcorticalen Ganglien und uber ihre Beziehungen zum epileptischen Anfall. XIII. Wanderversammlung der sudwestdeutschen Neurologen und Irrenärzte Arch f. Psychiatrie, vol. xx, 1889, p. 584.

It is of some interest to quote here what Dr. Spratling[8] says relating to Tuke's classification of epilepsies. Tuke speaks of "thalamic epilepsy," and defines it as "a form of epilepsy supposed to be due to a lesion in the optic thalamus. Special sense auræ are supposed to oftenest occupy this form."

### CLINICAL DEDUCTIONS AND REMARKS.

Some important clinical deductions are to be drawn from the facts presented in this paper. The *changes in* the pulvinar and apparently also in the external geniculate body were so marked in some cases that the ophthalmoscope in all probability would have revealed an atrophy of the disc. The importance of examining the fundus in all cases becomes thus evident.

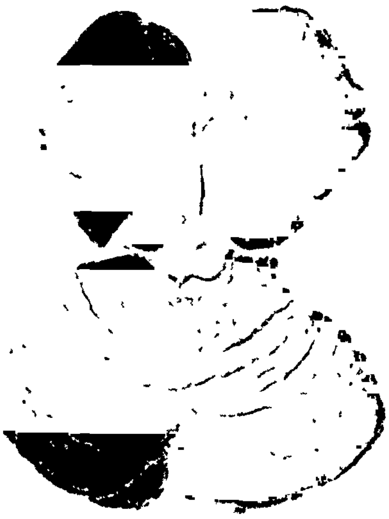

**Fig. 14.—Case 18. Left thalamus smaller than right.**

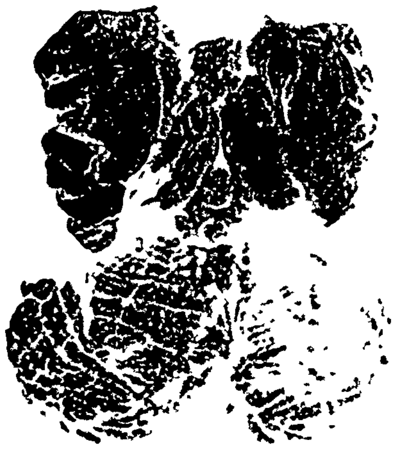

**Fig. 16.—Case 20. Cerebellar cyst on left side; also peculiarly shaped, almost pedunculated anterior tubercles of the thalamus. They are unusually small.**

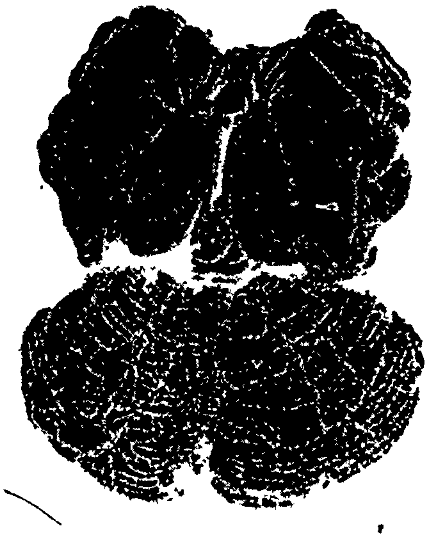

**Fig. 15.—Case 19. Right thalamus smaller than left.**

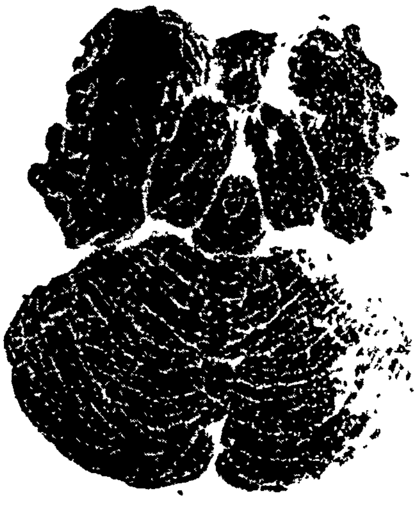

**Fig. 17.—Case 21. Right thalamus smaller than left. Pulvinar thalami markedly attenuated on left side.**

Likewise, the smallness of the internal geniculate bodies points to an involvement *of hearing which also ought to* be given clinical consideration. It is to be regretted that in the cases reported by me these points had not been inquired into clinically. I am responsible only for the anatomic investigation, with the exception of Case 2 which I had the opportunity of examining clinically.

It was first intended to append the clinical historie of the cases, but as these were inadequate, especially i their neurologic aspects, they have been omitted.

It should be said, however, that there was no doub about all the cases reported being epileptics.

How important a thorough clinical investigation i for the understanding of these cases is shown by the various anatomic findings in those cases I reported, whic must have had some clinical equivalents. It is only b a careful comparison of the clinical with the anatomi evidence that these cases can attain their full value. Certainly the routine method so much in vogue of simply taking what the German calls an "anamnesis," that is, the family and previous history of epileptics, without making a thorough medical, neurologic and psychic examination *of these patients* does not do these patients justice, and will not lead to any progress in the understanding of this disease.

The cerebellar changes noted in three cases (shrinkage of the convulsions and adjoining part of the hemispheres in two, cerebellar cyst in one) deserve a brief

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8. Tuke: Dictionary of Psychological Medicine, vol. i, p. 449, quoted by William P. Spratling in Epilepsy and Its Treatment, Philadelphia, 1904, p. 26.

## TABLE OF AUTOPSY FINDINGS IN 16 AUTOPSIES OF EPILEPTICS.

| Laboratory No. of Case | No. 4 | No. 5 | No. 6 | No. 9 | No. 10 | No. 12 | No. 13 | No. 14 | No. 15 | No. 16 | No. 17 | No. 18 | No. 19 | No. 20 | No. 21 | No. 22 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Age at death (in years) | 19 | 34 | 42 | 61 | 50 | 18 | 18 | 19 | 93 | 33 | 11 | 18 | 23 | 20 | 35 | 23 |
| Age at onset of epilepsy (in years) | 0 | 4? | 0 | 44 | 20 | 8 | 11 | 1½ | 88 or 89. | 1 or 37 | 11/12 | 6½ | 14 | 2 | 21 | 21 |
| Duration of epilepsy (in years) | 19 | 20? | 42 | 17 | 30 | 10 | 7 | 17½ | 4 or 5. | 28 or 30 | 10 | 11½ | 9 | 18 | 14 | 2 |
| Number of petit mal seizures. Average per annum before admission. | 0? | ? | 0? | 0? | 6-12-200 | ? | ? | Probably numerous. | | ? | ? | ? | ? | ? | ? | ? |
| Number of petit mal seizures. Average per annum at colony. | 5 | 28 | 0? | 95 | 14 | 3 | 9 | 49 | 1 | 43 | 1 | 36 | 5 | 18 | 12 | 1399 |
| Number of petit mal seizures. Approximately ascertainable total during life. | ...... | 810 | 0? | 1600 | 520 | 30 | 60 | 900 | 5 | 1200 | 10 | 400 | 45 | 300 | 150 | 3600 |
| Number of grand mal seizures. Average per annum before admission. | 70? | 50? | 100? | 700? | 3-4 | 100-150 | 1-365 | 12-52 | 12 | 52-365? | 12-365-730 | 1-2-365 | About 50 | 100-365 | About 12 | ? |
| Number of grand mal seizures. Average per annum at colony. | 30 | 31 | 21 | 27 | 4 | 131 | 250 | 179 | 1 | 264 | ? | 98 | 60 | 128 | 45 | 55 |
| Number of grand mal seizures. Approximately ascertainable total during life. | ...... | 1000 | 800 | 450 | 100 | 1200 | 1500 | 1500 | 25 | 6000 | ? | 1000 | 500 | 2000 | 500 | 100<br>See note. 11 |
| Valvular lesions. Mitral | 1 | ...... | 1 | 1 | 1 | 1 | ...... | 1 | 1 | 1 | Only brain autopsy allowed. | 1 | 1 | 1? | 1 | |
| Valvular lesions. Aortic | ? | ...... | 1 | 1 | ...... | ...... | ? | ...... | 1 | ? | | 1 | ...... | ...... | 1 | ...... |
| Valvular lesions. Tricuspid | ...... | ...... | ...... | ...... | ...... | ...... | ? | ...... | 1 | 1 | | 1 | ...... | ...... | ...... | ...... |
| Valvular lesions. Pulmonary | ...... | ...... | ...... | ...... | ...... | ...... | ...... | ...... | ...... | ...... | | ...... | ...... | ...... | ...... | ...... |
| Pneumonia | ...... | ...... | 1 | 1<br>Aspiration. | 1 | 1 | * | ...... | ...... | 1 | | 1 | 1 | 1 | ...... | ...... |

*Lungs not examined.

| Laboratory No. of Case | No. 4 | No. 5 | No. 6 | No. 9 | No. 10 | No. 12 | No. 13 | No. 14 | No. 15 | No. 16 | No. 17 | No. 18 | No. 19 | No. 20 | No. 21 | No. 22 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| BRAIN. Gross lesions of cerebral hemispheres. Marked thickening of pia over hemispheres, chiefly over convexity of fronto-parietal lobe | Brain has been lost | 1 | 1 | 1 | No brain autopsy made | ? | 1 | 1 | No brain autopsy made | See note No. 1. | ...... | 1 | 1 | 1 | 1 | 1 |
| More or less marked shrinkage of convolutions of the fronto-parietal lobe over convexity of hemisphere. | | 1 | 1 | 1 | | ...... | 1 | 1 | | 1 | ...... | 1 | ...... | 1 | 1 | 1 |
| Gross vascular changes of circle of Willis and branches | | ...... | ...... | 1 | | ...... | ? | 1 | | ...... | ...... | ...... | 1 | ...... | 1 | 1 |
| Circumscribed atrophy of right frontal lobe affecting its entire base and anterior half of its convexity. | | ...... | ...... | ...... | | 1 | | | | | | | | | | |
| Subdural hemorrhage over posterior part of 2nd and 3rd frontal convolutions and lower end of central convolutions | | ...... | ...... | ...... | | ...... | ...... | ...... | | ...... | ...... | ...... | ...... | ...... | ...... | 1 |
| Hydrocephalus, probably congenital, apparently confined to the temporo-parieto-occipital lobes leaving out the frontal ones. 850 cc. of fluid escaped from ventricles | | ...... | ...... | ...... | | ...... | ...... | ...... | | ...... | 1 | | | | | |
| Gross lesions of cerebral axis and cerebellum. Cerebellum. Cyst of left upper *vermis* and left cerebellar hemisphere, probably congenital. | | ...... | ...... | ...... | | ...... | ...... | ...... | | ...... | ...... | ...... | ...... | 1 | | |
| Cerebellum. Shrinkage of convolutions of upper vermis | | ...... | ...... | ...... | | Cerebral Axis not examined | ...... | Cerebral Axis not examined | | 1 | Cerebral Axis not examined | 1 | ...... | ...... | 1 | Cerebral Axis not examined |
| Thalamus and geniculate bodies. Marked reduction in the size of one or both *thalami*. Left one smaller. | | ...... | 1 | | ...... | | ...... | | ...... | 1 | | 1 | | | | |
| Marked reduction in the size of one or both *thalami*. Right one smaller. | | ...... | ...... | ...... | | | 1 | | | | | | | | | |
| Marked reduction in the size of one or both *thalami*. Both too small. | | ...... | ...... | ...... | ...... | | 1 | | ...... | | | ...... | ...... | 1 | 1 | |
| Marked attenuation of the *pulvinar* on one or both sides. Left one smaller. | ...... | ...... | ...... | | ...... | | 1 | | ...... | 1? | | | | | | |
| Marked attenuation of the *pulvinar* on one or both sides. Right one smaller. | | | | | | | | | | | | | | | | |
| Marked attenuation of the *pulvinar* on one or both sides. Both too small. | ...... | ...... | 1 | 1 | ...... | | 1 | | ...... | | | ...... | ...... | ...... | 1 | |
| Smallness of *external geniculate body* on one or both sides. Left one smaller. | ...... | ...... | ...... | | | | ...... | | ...... | ? | | | | | | |
| Smallness of *external geniculate body* on one or both sides. Right one smaller. | ...... | ...... | ...... | 1 | | | | | | | | | | | | |
| Smallness of *external geniculate body* on one or both sides. Both too small. | ...... | ...... | ? | ? | ...... | | ...... | | ...... | ? | | ...... | ...... | ...... | 1 | |
| Smallness of *internal geniculate body* on one or both sides. Left one smaller. | ...... | ...... | 1 | 1? | ...... | | ...... | | ...... | ? | | | | | | |
| Smallness of *internal geniculate body* on one or both sides. Right one smaller. | | | | | | | | | | | | | | | | |
| Smallness of *internal geniculate body* on one or both sides. Both too small. | ...... | ...... | ...... | 1 | ...... | | ...... | | ...... | ? | | 1 | ...... | ...... | ? | |
| Smallness of one or both *anterior tubercles* of the thalamus. | ...... | ...... | 1 | ...... | ...... | | ...... | | ...... | 1 left side. | | 1 left side. | | 1 | 1 | |

| Lab. No. of Case. | No. 4 | No. 5 | No. 6 | No. 9 | No. 10 | No. 12 | No. 13 | No. 14 | No. 15 | No. 16 | No. 17 | No. 18 | No. 19 | No. 20 | No. 21 | No 22 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Itenllectual state. | Mentally fair some congenital deficiency, can read and write. | Mentally feeble. | Mentally feeble silly talk incoherent. | Progredient dementia. | Progredient dementia. | Marked mental feebleness; progressive. | Mentally feeble; imbecile echo-speech. | Imbecile, idiotic. | ...... | Progressively feeble-minded; formerly bright. | Mentally very deficient. | Mental infeeblement, evidently progressive. | Progressive mental enfeeblement. | Imbecile progr.? | Fairly good intellect. | Intelligent. |
| Emotional state | Obedient well disposed. | Irritable at times. | Usually very talkative. noisy; sometimes depressed. One attack of fury. assaulting. | Much depressed. | | Short periods of maniacal excitement, hallucinatory. | Frequently noisy, destructive. aggressive. screaming. agitated. | Contented and harmless. | | | Very destructive, talkative, restless. Masturbates. | Quarrelsome, irritable, destructive, abusive, vile language. | Periods of maniacal excitement. | Destructive. irritable | Sullen, irritable. extremely quarrelsome. | Shortly before death easily moved to tears. |
| History or symptoms of focal disease, or of organic nervous disease in general. | | See note 2 | | See note 3 | See note 4 | | | See note 5 | | See note 6 | See note 7 | See note 8 | See note 9 | | | See note 10 |

NOTES SUPPLEMENTARY TO TABLE.

Note 1.—Case 16. In this case pia is also thickened, but over different regions and asymmetrically.

Note 2.—Case 5. Exaggeration of deep reflexes on left side.

Note 3.—Case 9. Infantile cerebral palsy at six months, i. e., right hemiplegia. Examination showed athetoid movements of left (or right?) side, athetoid movements of right hand.

Note 4.—Case 10. Spastic ataxic gait. "Exaggerated reflexes" on both sides. Temporary paraplegia at age of 21. Syphilitic infection at age of 25 (or earlier?).

Note 5.—Case 14. Spastic gait. No history notes accounting for it.

Note 6.—Case 16. Slight right hemiplegia; defective, uncertain, slow speech. "Exaggerated reflexes." Paralysis came on at age of 3 or 3½ years, during an illness accompanied by high fever and convulsions. Attributed to overdose of opium (?).

Note 7.—Case 17. In this case of hydrocephalus there was divergent strabismus, present since admission and for some hours before death a tonic spasm of right arm and right side of face. Otherwise no reliable date pointing to organic brain lesion.

Note 8.—Case 18. At age of 2½ stroke of right hemiplegia; at 6½ years stroke of left hemiplegia. Both recovered (?). Epilepsy set in after the second stroke. Clinical notes say only: "Exaggerated reflexes."

Note 9.—Case 19. "Left knee jerk exaggerated."

Note 10.—Case 22. Weakness of left arm, chiefly after attacks. Epileptic seizures of Jacksonian type, with preservation of consciousness and involvement almost exclusively of left arm, left side of face and left side of neck. Chancre two years before death. A few days before death he developed thick speech, partial aphasia and paraphasia, disturbance of deglutition and apparent involvement of vocal cords.

Note 11.—Also Case 22. The valvular lesion was here evidently an acute one, possibly a syphilitic one.

discussion. In view of their relative rarity as compared with the thalamic changes, they can not be given as much attention as the latter, but yet should not be allowed to pass without mention.

Claus and Van der Stricht,[9] who discuss the pathology of epilepsy quite extensively, make the following statements on cerebellar changes in epilepsy.

> The sclerotic indurations of the cerebellum are very frequent. They are often found at the autopsies of the epileptics. They have no special significance, they indicate likewise (*egalement*) a more generalized state of sclerosis. If localized exclusively in the cerebellum they can, just like the sclerosis of the cornea ammonis, of the olivary bodies, or of other parts situated outside of the motor centers, have an etiologic significance in the production of epilepsy.

The authors then go on to quote Duquet as having reported three cases of sclerosis of the cerebellum. They further mention Claus as giving the history of a female epileptic whose gait at the onset simply unsteady (*chancelante*) became more disturbed in the further course of the disease. The autopsy revealed a sclerous atrophy of the cerebellum. The cells of Purkinje and the nerve cells of the external layer were also diminished and atrophied.

Finally, Claus and Van der Stricht mention Pierret as quoting without comments a case of peripheral atrophy of the cerebellum with accompanying atrophy of the two olivary bodies and integrity of the rhomboid bodies. They conclude by saying: "We find it useless to multiply these instances."

If I have dwelt at some length on the changes of the cerebellum in epileptics it is because some authors have attributed to the cerebellum a relation to emotions. Close contact with epileptics shows, on the other hand, how frequently in these patients the emotions are at fault. (See table, emotional state.) However, I am fully aware that the small material at hand and the speculative character of the emotion theory of the cerebellum does not permit of any definite conclusions.

DISCUSSION.

Dr. **David I. Wolfstein**, Cincinnati, declared that this paper is valuable, as it certainly supports in a startling way the recent contribution to the study of these cases made by Dr. Starr, in which he made an effort to pick out a class and place them under the head of organic. It seems that in this group there is confirmatory evidence that organic lesions would be found.

Dr. **William G. Spiller**, Philadelphia, stated that he has many brains of epileptics from the Pennsylvania Training School for Feeble-Minded Children, and has observed changes similar to those which have been noted by Dr. Onuf. He does not think it wise to remove the pia, though by so doing better photographs can be made, but one can not then study the condition of the pia. Dr. Onuf's method of hardening the brain has been employed in a somewhat modified form by others. A physician, for the purpose of studying the retina, injected formalin into the eyeball immediately after the death of the patient, and succeeded very well in preserving the nerve cells. Dr. Spiller agreed with Dr. Onuf that it would be well to devote more time to the clinical study of the ocular and aural symptoms.

Dr. **N. B. Onuf** said that in principle Dr. Spiller's objection to removal of the pia is entirely justified. He explained, however, that the removal is not so objectionable as it seems on the surface, since the removed pieces were marked in the relation to the region from which they were taken. The pia was, for instance, removed in a strip over the second frontal convolution, and a note was made which end was the anterior one and which end adjoined the anterior central convolution. In such a manner the pia strips were all marked and removed for future study. Dr. Onuf declared that it is but fair to state that most of these cases were cases of advanced epilepsy with marked mental changes, usually marked dementia, but this does not exclude the possibility of finding such changes also in earlier stages of the disease.

# CEREBROSPINAL FEVER.

## EPIDEMIC CEREBROSPINAL MENINGITIS.

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### HISTORICAL.

Two diseases have especially excited the interest and baffled the researches of students of epidemiology and clinical medicine. One is influenza, the other epidemic cerebrospinal meningitis. Influenza has occurred in world pandemics which have been succeeded for varying periods extending over years by recurrent epidemics and sporadic cases and finally by periods of apparent absence of the disease until the sudden recurrence of another great pandemic. The opportunities afforded by the outbreak which began in 1889 have resulted in the discovery of the pathogenic agent of influenza—the bacillus of Pfeiffer—in the recognition of the transmissible nature of the infection and of the existence of sporadic cases by which the disease has been maintained for an indefinite time. But the regions in which the organism has continued to exist and the efficient mechanism by which, after long periods of latency, it suddenly gives rise to its pandemic effects, have thus far eluded research.

Epidemic meningitis—cerebrospinal fever—for about a century has been recognized as a substantive disease. Its occurrence in epidemics more or less extensive and prevailing under conditions wholly at variance with those which obtain with other transmissible or contagious diseases, its terrible symptom-complex, high mortality and the desperate state of many of those who survive the attack, together with the fact that the disease remains in sporadic form as a continuing menace to the health of communities in which it has once occurred in the epidemic form, have given it a singular and gloomy position among the pests of mankind.

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[9] Claus and Van der Stricht: Essai sur la pathogénie et le traitement de l'epilepsie, Bruxelles, 1895, p. 165.

The preliminary work of Weichselbaum (1887) and Jäger (1895) and the definite report of Councilman, Mallory and Wright (1897) have demonstrated the exciting cause of this specific form of cerebrospinal meningitis to the *Diplococcus intracellularis meningitidis.* A few days ago Councilman[1] published a most important contribution to the bacteriology and pathology of the subject, in which a brilliant side-light is thrown on the obscurities of the disease in certain of its epidemiologic and clinical aspects.

Quincke's lumbar puncture as a familiar procedure in clinical work has proved of inestimable advantage in the differential diagnosis between cases of pneumococcus and streptococcus meningitis and those due to the *Diplococcus intracellularis meningitidis.* Much has thus been done to clear up the obscurities regarding the origin and nature of cerebrospinal fever, but much remains to be done, especially with reference to the cases that are not well characterized and in the direction of treatment. The subject acquires a peculiar interest at this time on account of the epidemic which has prevailed in New York City since February, 1904, resulting in more than 1,000 deaths, the number recently reaching 130 deaths per week, and the evidences of its tendency to spread in Philadelphia since the localized outbreak of 23 cases which occurred at the U. S. Navy Yard at League Island in the spring of 1904. At the present time there are 3 cases in the medical service of the Pennsylvania Hospital. It is also reported that the disease has assumed an epidemic form in some parts of Europe, especially in Silesia.

Cerebrospinal fever may be defined to be an acute, infectious, epidemic disease caused by the *Diplococcus intracellularis meningitidis,* characterized clinically by sudden onset, with headache, vomiting and painful contraction of the muscles of the back of the neck, irregular fever, profound nervous symptoms, rapid course and high death rate; anatomically by inflammation of the meninges of the brain and cord.

This disease was first recognized as a distinct affection about the beginning of the nineteenth century. It is probable, however, that it has existed from a remote period. Vieusseaux described an outbreak which appeared in Geneva in the winter and spring of 1805. The following year an outbreak in Medford, Mass., was described by Danielson and Mann. From that time the disease was extensive in the New England states, prevailing in circumscribed epidemics until 1816. At the same time and subsequently, as shown by Hirsch, the disease prevailed in various parts of Europe and in the United States, chiefly in isolated epidemics. Stillé fully described the disease as it prevailed in Philadelphia and in other parts of Pennsylvania in 1867. In the last three decades scattered cases occurring singly or in small groups have led to the belief that the disease has become naturalized in regions in which it previously prevailed in epidemic form.

Climate appears to have little influence as a predisposing factor. Epidemics have occurred in Sweden and on the Mediterranean coast, and in this country from the Gulf coast to Canada. Outbreaks are more common and extensive in the winter and spring than in the warm seasons of the year. Densely populated cities and sparsely settled agricultural regions are alike subject to its prevalence. Observers concur in the statement that damp, overcrowded and unclean habitations favor its spread and that persons living on the ground floor are especially apt to suffer. In adult life the proportion of males attacked is greater than that of females. Among children the number of males and females is about equal. Cerebrospinal fever is especially a disease of children and young adults. After 40 it is uncommon, though the diagnosis has been verified postmortem in individuals over 70. Individuals of all occupations and professions are liable to this disease. Military life involves a special liability.

### COMMUNICABILITY.

Cerebrospinal fever does not appear to be contagious in the sense in which we are in the habit of using the term in speaking of smallpox, scarlet fever and typhus. Councilman, in his first report, states that the evidence, on the whole, is not conclusive that the disease is incapable of being transmitted from one individual to another. The definite micro-organism which causes it is, in the majority of instances, confined to the meninges of the brain and cord, with little or no opportunity of transmission to other individuals. In cases in which there are lesions in the lungs, ears and nose, however, infection of neighboring objects or persons may readily take place. It is important at this point to note the following statement of Councilman in the recent contribution to the subject above referred to:

> The presence of (these) sporadic cases is of importance in the occurrence of epidemics. The diplococcus intracellularis is an organism of feeble vitality; it dies out easily on exposure to drying and light and is incapable of a saprophytic existence. In the absence of intervening infections, it would be impossible for the period of epidemics to be bridged over. Not only this, but there is evidence that this organism can produce other infections and may even live as an inhabitant on the normal mucous membrane.

The older literature contains numerous accounts which suggest the possibility of the specific exciting cause of this disease being communicable from one person to another, or at least portable on the person or among the effects of those who have been exposed to it. Many of these relate to the outbreaks among French troops and are highly suggestive. The two following cases are cited by Hirsch as occurring in the epidemic of West Prussia in 1865:

> On February 8, K., aged 20, fell ill in the township of Sczakau. He was nursed by the girl W., who had hastened to him out of the village of Sullenczyn. After the death of K. his nurse returned home and there died, on February 26, of epidemic meningitis. This was, with the exception of one on January 15, the first fatal case of meningitis in Sullenczyn. To the burial of this maid came the family of the farm-steward K., to Sullenczyn from the township of Podgass, accompanied by the servant D. and the 4-year-old daughter O. of the teacher R. in Podgass. After their return from the funeral a little child of K.'s fell ill and died in twenty-four hours, then the servant D., who died on March 4, and finally the girl R. on March 7.
>
> At another village, two children of one family, aged, respectively, 1½ and 3½ years, died of the epidemic, one on January 27 and the other on February 7. The clothes of the deceased were taken to a neighboring village, and came into the possession of a girl, aged 5 years. She soon sickened of the epidemic and died on February 14.

Stokes reports the following case:

> A child was seized with epidemic cerebrospinal meningitis and died. A second child of the same family was attacked with the malady a few days later. The day following the

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[1] The Journal A. M. A., April 1, 1905.

attack of this child the mother, who slept in the same bed with it, sickened of the disease.

The next case was observed by J. Lewis Smith:

A boy, 12 years of age, died of cerebrospinal fever and was buried on Saturday or Sunday. On the following Monday the mother washed the linen of the boy, which had accumulated, and within two days was herself affected with the disease. She and her infant, who was also seized with it, died.

The following personal observation is not without interest:

I saw at 8 o'clock in the evening of March 13, 1905, in consultation with a medical colleague, a physician 33 years of age, suffering from fulminant cerebrospinal fever, the first symptoms of which had appeared on the previous evening and which terminated fatally during the course of the night in a little more than twenty-four hours from the onset. This man had been in constant attendance on a patient who had died of malignant cerebrospinal fever of two days' duration about twelve hours before his own sickness began.

In view of the foregoing facts it can not be affirmed that cerebrospinal fever is not under certain circumstances a transmissible disease.

## THE SPECIFIC ORGANISM.

Second attacks are exceedingly rare. The Massachusetts report refers to five instances collected from the literature. It is probable that in most cases persistent immunity follows the attack. The pathogenic organism is found in the fluid obtained by lumbar puncture and in the meningeal exudate. The cerebrospinal fluid is usually more or less turbid, sometimes very turbid, especially early in the course of the attack. In a chronic case under the care of my colleague, Dr. Lewis, in the Pennsylvania Hospital, the fluid was turbid when first withdrawn, but perfectly clear on a second puncture made 43 days later, although the symptoms persisted. In one of my own cases in which the duration of the illness could not be determined and the patient prior to his admission to the hospital was supposed to be suffering from uremia, the fluid was perfectly limpid, but showed pure culture of the *Diplococcus intracellularis meningitidis.*

While turbidity of the spinal fluid is of diagnostic importance, its perfect limpidity does not constitute a negative sign, and in either case cultures are necessary to the diagnosis.

The organism grown in pure culture appears in diplococcus form with an unstained interval. It reacts to ordinary stains and is decolorized by the Gram method. It grows best on Loeffler's blood serum mixture. In the tissues the diplococcus is almost constantly confined to the interior of the polynuclear leucocytes. The diplococci are found only in connection with the lesions of the disease. Mixed infections are not uncommon. In the Boston cases the pneumococcus was found seven times, once in connection with Friedlander's bacillus. Terminal infections with staphylococci and streptococci were occasionally found. Lumbar puncture was performed in fifty-five cases and in some of these several punctures were made. Diplococci were found either on microscopic examination or in cultures in thirty-eight of these cases. The average period from the onset of the attack before the puncture was made was seven days in the positive cases and seventeen days in the negative cases. The longest time after the onset in which the fluid drawn by puncture gave positive results was twenty-nine days.

## SYMPTOMS OF THE ORDINARY FORMS.

Cerebrospinal fever presents a great diversity of symptoms in different cases. No other acute disease appears in such various guises. Stillé has well called it a "chameleon-like disorder." The period of incubation is unknown. Prodromes are rare. When present they consist of headache, dragging muscular pains, vertigo and a sense of fatigue. The onset of the attack is usually abrupt. It is marked by a chill, agonizing headache, nausea and vomiting. In some cases headache is not a conspicuous symptom. The attack begins with vertigo and the patient acts like a drunken man. This was the mode of onset in a case which I recently had the opportunity of seeing. Presently dragging pains in the neck come on, which spread along the spine and into the extremities and are soon followed by motor symptoms which progressively develop. These consist of titanic stiffness of the spinal muscles, great pain on attempting to bend the head forward or to turn it from side to side and awkwardness and difficulty in movements of the extremities. Strabismus, inequality of the pupils and palsies of the facial muscles are common. In the course of a little time opisthotonos develops, the head is drawn back, the spine curved, the forearms flexed on the arms and the legs on the thighs. Muscular cramps and spasmodic twitchings come and go. In young children general convulsions may occur.

Hemiplegia has been frequently observed. Paraplegia may also occur. Paralysis may develop during the course of the attack and disappear shortly or it may persist for some time.

The sensory symptoms consist of headache, which may be sharp, lancinating or boring and commonly referred to the back of the head; sometimes it is felt as a constricting band; pain in the back of the neck and in the lumbar and epigastric regions and general hyperesthesia, most marked in the face and neck. Various disturbances of the special senses occur. There is a photophobia, intolerance of sounds, ringing in the ears and vertigo.

The physical disturbances are striking. The patient is restless and distressed. His face is seldom flushed, usually pale and slightly cyanotic. In children there is great irritability. Delirium occurs early and may be active, even maniacal or of a busy wandering character. After a time it passes into somnolence or stupor, which may be still attended by more or less restlessness and continual movement on the bed. In the worst cases stupor deepens to coma.

The symptoms referable to the alimentary tract are not characteristic. The tongue is at first slightly covered with a whitish fur. In conditions of great depression it becomes dry and brown and sordes collect. Taste is lost and the patient refuses food; nevertheless the vomiting persists. Constipation is commonly present throughout the sickness. Toward the end of the attack, however, diarrhea and involuntary discharges may take place. The abdomen, as a rule, is neither tender nor tympanitic. Slight, exceptionally marked enlargement of the spleen may be made out.

The fever is generally moderate, very irregular and does not observe a typical course. There are frequent remissions. In some instances fever is slight or absent altogether. On the other hand, the temperature may reach 105° or 106° F. In some cases it abruptly rises before death. The fever, even when intense, may be of short duration. There is no constant relation between the intensity of the febrile movement and the severity of the other symptoms. Defervescence may take place without improvement in other respects, so that there are cases in which severe nervous symptoms persist for weeks after the temperature has fallen to normal or even to subnormal ranges. Many of the cases show a temperature range of irregularly remittent type. In the milder cases the temperature is sometimes distinctly intermittent. The subfebrile temperatures are sometimes broken by rapid and transient elevations.

The pulse is also irregular. There is no constant correspondence between the pulse and temperature. It may be soft and weak, even slower than in health, and is often intermittent and arythmic. Abrupt changes in the force and frequency of the pulse are common. Change in the frequency from 80 to 100 has been observed in the course of a minute. The rhythm of the respiration may be disturbed and Cheyne-Stokes breathing may occur in the graver cases.

Leucocytosis is present throughout the disease, diminishing toward the end of the attack in cases which recover. In 33 cases in the Boston epidemic in which blood counts were made the maximum number of leucocytes was 31,000, the minimum 9,350. In a case under my observation at the present time there is a leucocytosis of 40,000. Differential counts show that the increase is chiefly due to the polynuclear leucocytes.

Lesions of the skin are common. To their prominence is due the old name of spotted fever. They vary greatly in different epidemics. In many cases they are absent altogether. They have been more frequent in the American and Irish epidemics than on the Continent. They are polymorphous and several different forms may occur in the same case. Herpes is far more common than any other eruption. It usually appears on the lips and nose, but may involve other parts of the face or body and may vary from a crop of a few fine vesicles to an abundant eruption of large vesicles. A petechial rash is frequently observed, and in some instances extensive hemorrhagic areas develop in the skin. The petechiæ often resemble flea-bites. They are distributed in varying numbers over the whole surface, but particularly about the knees and elbows. In some cases the rash is abundant and develops with great rapidity. Patches of erythema, dusky mottlings and rose spots disappearing on pressure, like the rash of enteric fever, have been observed. Among the rarer cutaneous manifestations are urticaria, erythema nodosum, pemphigus and gangrene.

The urine is, as a rule, increased. It may be much increased even with high temperature. The reaction is usually acid. A moderate amount of albumin is frequently present. Recent personal observations lead me to believe that there is a special form of cerebrospinal fever characterized by symptoms of an acute nephritis and corresponding to the renal form of enteric fever—the nephrotyphus of the French. I have seen two such cases in which the urine from the onset was densely albuminous, of high specific gravity and contained epithelial and blood casts and free blood. One of these cases terminated fatally; the other is still under observation. Glycosuria occasionally occurs, and in malignant cases hematuria has been observed. Retention of the urine is common in the graver cases. Polyuria is frequent in children, and in some cases has persisted for years after convalescence.

The eye lesions are referable to three causes. First, neuritis, due to the involvement of the nerve in the exudate at the base without extension of the inflammatory process to either the orbit or the eye. This condition may affect the oculomotor and the optic nerve. Second, inflammation from the meninges may extend directly into the eye along the pia-arachnoid of the optic nerve, causing purulent choroido-iritis and in very rare instances suppuration in the orbit. Keratitis may arise in consequence of an extension of the inflammation from the iris and ciliary region. The third cause is neuritis of the fifth nerve, with destruction of the gasserian ganglion and loss of sensation. To this most of the cases of keratitis and purulent conjunctivitis are due.

Symptoms relating to the auditory apparatus are very common. The auditory nerve is generally swollen and surrounded by the exudate. Extensive degeneration of the nerve fibers is frequently found, the degeneration being most marked in the chronic cases.

The subject has been especially studied by Moos, who found that of 64 cases of meningitis which recovered 59 per cent. were deaf, in 7 per cent. the hearing was impaired and in 31 per cent. it remained normal. Of 43 cases closely investigated, deafness appeared in 2 on the tenth day, 6 on the second, 3 on the third, 17 between the fourth and tenth days and 15 between the fourteenth day and the fourth month. This observer thinks that it is possible that the abortive form of epidemic cerebrospinal meningitis is the cause of many cases of early acquired deafness. Deafness is frequently due to disease of the labyrinth. Otitis media and mastoid disease occur. The diplococci are found in the pus cells.

Coryza has been frequently observed in the course of the attack. Weigert first advanced the opinion that in meningitis the nose forms the portal of entry for the infectious organisms. It may be, however, that their presence is due to an extension from the brain and not to primary invasion. Epistaxis occurs also. In 15 of the Boston cases 10 showed the presence of the diplococci in the nasal secretion, and in 18 cases examined by Scherrer the diplococci were found in the pus cells.

The wasting in severe cases is rapid and extreme. An early, sudden and great loss of strength is a frequent and prominent condition in this disease.

The symptoms may be divided into those due to the inflammatory lesions of the cerebrospinal organs and those due to a general infection. In the malignant cases both these groups of symptoms are of overwhelming severity. In the mild cases the nervous symptoms are predominant. The foregoing symptoms indicate the nature and severity of the disease in its ordinary form.

### SYMPTOMS OF THE ANOMALOUS FORMS.

A. *Malignant* (*Meningitis Cerebrospinalis Epidemica Siderans*).—The patient is struck down without warning and speedily falls into a state of collapse. A violent chill is followed by cyanosis, coldness of the surface, profuse perspiration, intense headache which alternates with drowsiness and brief delirium followed by unconsciousness. There may be contraction of the neck. Respiration is slow and labored; the pulse rapid and feeble; the urine scanty and loaded with albumin. Purpuric blotches appear on the surface. Cases of this kind have occurred in many epidemics and with greatest frequency at the beginning of the outbreak. They may occur sporadically. Death may ensue in the course of a few hours.

B. *Abortive* (*Meningitis Cerebrospinalis Epidemica Abortiva*.)—The onset of the attack is severe. In the course of a few days the symptoms subside and convalescence is rapid. Under this head must be included the mildest ambulant cases. Patients complain of headache, stiffness in the neck and spine and malaise. Vomiting occurs. Fever is, as a rule, absent. Stillé relates the case of a girl who was fully convalescent on the fifth day, and states that he observed many slight but distinctly marked cases that were convalescent within a week. J. Lewis Smith has reported similar cases in childhood. Cases of this kind can only be recognized in the light of a prevailing epidemic.

C. *Intermittent* (*Meningitis Cerebrospinalis Epidemica Intermittens.*)—Intermittent and remittent cases are common. Not only the fever, but other symptoms of the disease show extraordinary exacerbations and remissions, which may be repeated at intervals of twenty-four or forty-eight hours. These cases may be due to successive involvement of areas of the meninges or to fresh growths of the organisms. They rarely, however, present the well-marked periodicity of the malarious diseases.

D. *Chronic* (*Meningitis Cerebrospinalis Epidemica Chronica.*)—Cases of this form occur in all epidemics. The disease lasts, with numerous complications, remissions and exacerbations, for several weeks or in some instances for five or six months. Emaciation is extreme. The symptoms may be due to the persistence of conditions left by the acute attack, such as chronic hydrocephalus or abscess of the brain, or general neuritis.

### COMPLICATIONS AND SEQUELS.

Among the complications and sequels are pleurisy, endocarditis and pericarditis. Bronchial catarrh and deglutition pneumonia are very common. Croupous pneumonia has been very common in some of the epidemics. This complication occurs more frequently at the close than at the beginning of an epidemic. This was especially the case in an epidemic observed by Immerman and Heller at Erlangen. It is uncertain whether in some instances the cases of pneumonia reported in connection with epidemic meningitis have been cases of true croupous pneumonia or cases of diplococcus pneumonia. In the Boston epidemic the latter condition was found in 8 cases, in one of which the amount of lung involved was so extensive as to resemble both clinically and anatomically ordinary croupous pneumonia.

Arthritis, commonly slight, but in rare instances suppurative, has been noted. The wrist joints are most commonly involved. I have observed transient, painful swelling, usually involving the wrists or knees, in a number of cases. In the League Island epidemic, among 23 cases there were 8 in which purulent arthritis occurred. Swelling of the parotid glands is an occasional accident of the disease. It may be slight or may run on to suppuration—parotid bubo.

Intestinal catarrh may occur as a complication. Malarial and enteric fever and measles, scarlet fever and cholera have been encountered as intercurrent affections.

The convalescence is irregular and uncertain. After severe cases it is apt to be tardy. Relapses are not uncommon and are often fatal.

Among the more important sequels are prolonged debility and emaciation, palsies and various forms of paralysis, impairment of intelligence in consequence of chronic meningitis and chronic hydrocephalus, especially in children, and more or less complete deafness and loss of vision. General motor weakness and paralysis of individual cranial nerves or of the lower extremities may persist for a long time. They depend on lesions of the brain or spinal cord or pressure exerted by extensive organized inflammatory exudate, or on peripheral neuritis.

The symptoms of chronic hydrocephalus are paroxysmal. They consist of severe headache, intolerance of light and sound, vertigo, pains in the neck and limbs, vomiting, involuntary discharges, convulsions and loss of consciousness. The attacks occur either at long and irregular intervals or in rapid succession. The mental and bodily condition of the patient during the intervals is sometimes such as to lead to delusive hopes of his recovery.

### DIAGNOSIS.

The direct diagnosis of cerebrospinal fever by ordinary clinical methods is a matter of difficulty in sporadic cases and at the beginning of outbreaks. The diagnosis of any form of meningitis is occasionally obscure. Sudden onset, chill, fever, vomiting, delirium, tremor and painful rigidity of the back of the neck may occur in pneumonia, the malignant form of variola, typhus and especially in the cerebrospinal form of enteric fever. The phenomenon described by Kernig in 1884 and known as Kernig's sign is found to be present in 80 to 90 per cent. of the cases of meningitis and only exceptionally present in other cases. This test is often attended by evident pain on the part of the patient. Kernig's sign is not available in cases of rheumatic or other forms of arthritis of the knee or hip, myositis, contractions from nervous disease and sciatica.

If meningitis be present there is usually no great difficulty in recognizing cerebrospinal fever during an epidemic. The ordinary and anomalous forms alike show a symptom-complex that in the course of a little time is distinctive. In doubtful cases and, indeed, in all cases when practicable lumbar puncture should be performed. The method is easy and has been shown by experience to be devoid of danger. If carried out early in the attack, at the time when the diagnosis is often as important as it is difficult, the result is commonly conclusive.

If the patient has meningitis the fluid withdrawn is, as a rule, but not invariably, more or less cloudy; if cerebrospinal fever, the *Diplococcus intracellularis meningitidis* (meningococcus) will be found on direct microscopic examination or in cultures. Positive conclusions can only be drawn from positive results. When the result is negative the operation must be repeated.

### DIFFERENTIAL DIAGNOSIS.

The differential diagnosis between cerebrospinal fever and the following diseases demands consideration:

1. *Pneumococcus Meningitis.*—This may occur alone or in connection with croupous pneumonia. The pulmonary lesion may be latent. In fact until very recently this organism was very generally regarded as the cause of epidemic cerebrospinal fever. Symptoms indicating extensive infection of the meninges, of the cord and spinal roots and extension of the infective process along the cranial nerves are less marked or absent altogether. Contraction of the muscles of the neck may be absent, delirium and coma are present and occur early, and this form of meningitis is commonly fatal, while cases of the epidemic form may recover.

2. *Streptococcus Meningitis.*—This form is secondary to infection elsewhere. Fracture of the skull, especially fracture of the base, local abscess formation, acute endocarditis, erysipelas of the face and scalp, otitis media

with extension to the mastoid or the meninges, are forms of primary infection. Opisthotonos is neither common nor well developed. The symptoms develop slowly and are often for a time obscure. The association of painful rigidity, intense headache and vomiting is not conspicuous. Eye symptoms are common.

3. *Tuberculous Meningitis.*—This, perhaps the most familiar form of meningitis, is to be distinguished from cerebrospinal fever by a protracted period of prodromes, more gradual onset, slower course, slow and irregular pulse, great irregularity of the respiration and the absence of eruption. Antecedent tuberculous disease, failure of health following measles or influenza, tuberculous glands or a hereditary predisposition to tuberculous infection are found in the history of the patient. In children or during the prevalence of an epidemic of cerebrospinal fever and in cases in which the tuberculous process involves the spinal meninges (Hirsch) the diagnosis is far from easy.

4. *The Cerebrospinal Form of Enteric Fever.*—The onset is sudden and the symptoms of the period of invasion are those of cerebrospinal fever. About the end of the first week the cerebrospinal phenomena usually subside more or less abruptly and the subsequent course of the illness is that of an ordinary case of enteric fever.

5. *Scarlet Fever.*—In some instances the sudden onset, high febrile movement, vomiting, convulsions and stupor suggest cerebrospinal fever as it occurs in children. The presence of the peculiar redness of the palatine half arches rapidly followed by general erythematous angina are important. In the course of twenty-four or thirty-six hours the efflorescence will clear up any uncertainty.

6. *Typhus Fever.*—At one time cerebrospinal fever was confounded with typhus or regarded as a variety of that disease. To Stillé is due the credit of having finally settled every question of doubt concerning the identity of these two diseases in this country. They are in strong contrast in respect of their causes, symptoms, course, lesions and sequels.

7. *Hysteria.*—Cases of cerebrospinal fever occurring in nervous females at the close of epidemics or sporadically have presented a delirium so peculiar and an array of symptoms so little characteristic that they have been looked on as manifestations of hysteria. This error in diagnosis is no longer possible.

### PROGNOSIS.

In individual cases the prognosis can never be made with certainty. The abortive and fulminant cases run the most rapid course. Hirsch has emphasized the fact that certain cases which at the onset present the symptoms of cerebrospinal fever recover after an illness of a few hours, which terminates in free sweating. The malignant cases, on the other hand, prove fatal in a few hours or two or three days. Moderately severe cases may last one or two weeks or several months. The first week is the time of greatest danger. Symptoms rendering the prognosis unfavorable are intense excitement, early depression, persistent vomiting, irregular respiration and convulsions alternating with coma. The average mortality is about 40 per cent. It varies in different epidemics from 20 to 75 per cent. The mortality in the Boston outbreak was 68 per cent.

Relapses are not infrequent and are often fatal.

Bad as the prognosis in cerebrospinal fever is it is still worse in pneumococcus, streptococcus and tuberculous meningitis, these conditions almost invariably terminating in death.

### PROPHYLAXIS.

In times of epidemics cleanliness of dwellings and the avoidance of overcrowding should be instituted in the hope of diminishing the severity and mortality of the disease. The successive attack of different members of a household demands the abandonment of the dwelling and thorough disinfection. Isolation of the patients and sterilization of their clothing should be carried out.

### TREATMENT.

The mildest cases require no treatment; the malignant cases react to none. Medicine with all its resources is neither capable of combating the attack nor responsible for its results. Of this group of cases Stillé has said "the first symptoms of the disease are the first phenomena of death."

The room occupied by the patient should be darkened and quiet. The diet should consist of milk, eggs, meat juice and broths administered at regular intervals. When food can not be taken by the mouth, nutritious enemata should be given. Water should be freely administered. Alcohol is to be given when the symptoms of depression appear, whether at the onset of the attack or later. A guide as to its amount is the effect on the character of the pulse and the first sound of the heart. Venesection, generally practiced in the early history of the disease, is in no case admissible. On robust individuals wet cups may be applied to the nape of the neck and along the spine or leeches to the temples and in the neighborhood of the mastoid process. The continuous direct application of cold to the head and spine by means of ice-bags is of value. The pain is relieved and in some instances quietude and sleep ensue. If the temperature be high systematic cold bathing may be practiced. During the application of cold to the head and spine and after cold bathing the patient should be covered with warm blankets and artificial heat applied to his sides, thighs and extremities. Warm baths, 104° F., of ten minutes' duration, have been recommended. Blisters applied to the occiput and nape of the neck early in the attack have appeared to be of service. They should be carefully watched and immediately removed on the development of signs of vesication, which is liable to be followed by troublesome sloughing. The thermo-cautery may be used.

Laxative doses of calomel should be given early in the attack. Quinin has been extensively employed. There is no evidence that it exerts a favorable influence, much less that it is capable of aborting the disease. Opium may be regarded as one of the indispensable remedies in the treatment of epidemic meningitis. The indications for its use are to be found in the headache and spinal pains, restlessness, spasm, hyperesthesia and sleeplessness. It should be given early and in full doses. Experience has demonstrated a remarkable tolerance for this drug in cases of cerebrospinal fever. Strong gave in one case 60 drops of laudanum every half-hour until half a fluid ounce was taken. Some of the early American physicians gave enormous doses, half an ounce of the tincture of opium or from 30 to 60 grains of the crude drug in the course of twelve hours. These large doses were frequently followed by recovery. Stillé gave one grain every hour in grave cases and every two hours in moderately severe cases without even an approach to narcotism. He adds that "under the influence of the medicine the pain and spasms subsided, the skin grew warmer and the pulse fuller, and the entire condition of the patient more hopeful." Morphia may be administered hypodermically in doses of from 1/6 to ½ grain. With great restlessness and jactitation hyoscin hydrobromate is indicated. In the case of children the dose must be cautiously regulated.

Ergot, belladonna, cannabis indica, gelsemium, chloral, zinc oxid and the bromids are of inferior value. They are frequently, however, given in connection with opium or morphia. Inhalations of ether or chloroform may be cautiously employed to secure temporary relief from torturing pain, jactitation and spasm. Veratrum viride and aconite are mentioned only to condemn their use in this disease. The modern analgesics may be employed alone or in conjunction with opium and its derivatives in the management of the milder cases of the disease. Large doses are to be avoided.

℞. *Phenacetini* .......................... 3|
Chart No. viii.
Div. S. One powder q. tertia vel quarta hora.

℞. Pactophenini .......................... 2|
  Sacch. alb.............................. 1|
Chart No. vi.
Div. S. One powder q. t. v. q. h.

℞. Antipyrini ............................ 3|
  Sacch. alb.............................. 1|
Chart No. viii.
Div. S. One powder q. t. v. q. h.

If the headaches and pains increase cerebrospinal fluid may be withdrawn by lumbar puncture in order to diminish the intracranial pressure. Performed early in the course of the disease and repeated at intervals, it has been frequently followed by beneficial results.

Manges has reported 3 successful cases treated by the injection of lysol in 1 per cent. solution into the spinal canal after the removal of the exudate. This method was originally suggested by Carlos Franca at Lisbon in 1903. Wolff, of Hartford, Conn., basing the procedure on an antagonism which he found to exist between the *Diplococcus intracellularis* and the Klebs-Loeffler bacillus and the fact that the former were precipitated from active bouillon cultures on admixture with diphtheria antitoxin serum, was led to use the antitoxin in the treatment of this disease with satisfactory results, and Waitzfelder[2] treated 17 cases in the same manner, employing from 4,000 to 10,000 units, according to the age of the patient and the severity of the symptoms, at intervals of two or three days. Of his 17 cases, 5 recovered completely, 3 died and 9 were still under observation at the time of the publication of the report, 5 of the last "giving promise of speedy recovery." These observations are now being extensively repeated. In two cases of which I have knowledge the antitoxin treatment was employed without result, but these two cases were of fulminant type, one dying at the end of forty-eight hours and the other in a little more than twenty-four hours.

During a period of depression stimulants are to be freely given. Preparations of alcohol, ammonium carbonate and the spirit of chloroform are recommended. Cold effusion may be occasionally practiced.

During convalescence the bitter tonics and iron may be given. Cod liver oil and iodid of potassium are also employed. Delirium, spasm and irritability of the stomach too often in the severe cases render the administration of medicine and food impracticable. As recovery takes place the appetite is often excellent and an abundant, easily digested and nutritious diet of mixed solid food should be given.

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[2] Med. Record, N. Y., March 11, 1905.

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# THE ACTION OF THE INTRACELLULAR POISON OF THE COLON BACILLUS.*

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It is now generally conceded that the pathogenic bacteria bring about those changes in the body cells which form the basis of what we call disease by virtue of certain poisons which they produce. These poisons are supposed to be specific for each kind of bacteria and to them the name of toxin has been given. Certain bacteria possess a toxin which is not an integral part of the cell itself, and hence is not essential to its existence. As examples of such organisms may be mentioned the bacillus of tetanus and that of diphtheria.

With these bacteria the toxin is found free in the culture medium and there are differences in opinion concerning its origin, some regarding it as a cleavage product formed by the action of the bacillus either directly or through a chemical ferment on the constituents of the culture medium, while others think that the soluble toxin represents a group of the bacterial cell which easily drops off. On the other hand, the filtrates of cultures from such bacteria as the typhoid and the colon bacillus are non-toxic, or, at the most, possessed of but feeble toxicity. In the later instance the poison exists as an integral portion of the bacillus itself and can be set free only on the death of the latter. We therefore have two distinct classes of so-called specific bacterial poisons, the one being easily cast off from the living cell and hence called an extracellular toxin to distinguish it from the toxin which can not be split off from the bacterial cell without destroying the latter, the intracellular toxin.

That the colon bacillus, when introduced into the animal body, is one of the most deadly of all bacteria is a fact which is too well known to require further proof. There is no other germ which causes more anxiety to the abdominal surgeon, and the fatal results following typhoid perforation, strangulated hernia, and appendicitis when left to pursue their course uninterruptedly are in almost all instances due to its ravages.

The colon bacillus is a normal inhabitant of the intestinal canal, and so long as it remains within the canal it is practically outside of the body and can do no harm. When it obtains an entrance into the peritoneal cavity, however, it multiplies and at the same time is disintegrated by the protective agencies of the body. As it is broken up, its intracellular poison is set free and then, and not until then, is it capable of acting on the body of the host. It is not, therefore, from the growth of the bacterial cell in the peritoneal cavity that death directly results, but rather from its destruction. Primarily, of course, it is essential that the growth of the organism should have advanced to such a degree that enough bacterial cellular substance shall be present to furnish a sufficient quantity of the poison to cause a fatal issue in the body on its liberation. The necessity of employing a large amount of the living culture in order to obtain a fatal dose of poison from it has long been urged as one of the principal arguments against the intracellular poisons being true toxins. As compared with diphtheria and tetanus, this is, indeed, true, but the comparison is hardly a fair one. Thus, in the case of the diphtheria bacillus. the same germ may go on producing toxin without loss of life, for all one knows, indefinitely, whereas, in the case of the colon bacillus, the bacterial cell must die and undergo disintegration before its toxin can be liberated, and then only a definite amount can be obtained from each bacillus.

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It is not the purpose of this paper, however, to prove absolutely that the intracellular poison of the colon bacillus is a true toxin but to show that such a poison can be obtained and to compare its action on the animal body with that of the living organism. Whether or not this poison is a true toxin will be discussed when we take up the subject of immunity in a later paper. The fact that a potent intracellular poison can be obtained from the colon bacillus is of especial interest, since several authors have recently denied the existence of the so-called endotoxins, affirming that the colon and typhoid germs cause disease in the same manner as does the diphtheria bacillus, by the production of soluble poisons within the body of their host. These authors explain the absence of such poisons from artificial cultures on the ground that the medium is not suitable for their production, and that consequently the soluble toxins are elaborated solely within the animal body. It is needless to state that such a theory rests almost entirely on negative evidence and if it can be conclusively shown that the colon bacillus, when grown on artificial media, does produce a powerful poison which causes death in much the same manner as does the living germ, the endotoxic explanation would seem to be much more plausible. In discussing the action of the intracellular poison of the colon bacillus, it will be found convenient to take up the action of (1) fatal doses of living cultures, (2) fatal doses of the dead germ substance in which the poison still exists in the bacterial cell, which has, however, been deprived of life; (3) doses of the poison obtained by chemically splitting up the bacterial cell by boiling with a 2 per cent. solution of sodium hydrate in alcohol. In this case the poison is obtained in a comparatively free form.

### THE ACTION OF THE LIVING GERM.

When a guinea-pig is inoculated with a fatal dose of the living colon germ, practically no symptoms whatever are noticeable for a period varying from five to seven hours, according to the size of the dose given. This may be considered as the period of incubation and is roughly proportional to the amount of living germ injected. We have always worked with a bacillus 1 c.c. of a 12-hour or older, bouillon culture of which has invariably proved fatal for guinea-pigs within 24 hours. If 1 c.c. of such a culture is given, no effects will be seen for a period of from 10 to 12 hours. If, on the other hand, 2 c.c. of the same culture be injected, the animal will begin to manifest symptoms of illness in from 8 to 10 hours, and if still larger doses are given the symptoms will become apparent in a still shorter time. This period of incubation undoubtedly represents the time taken for the bacillus to multiply and to be destroyed to such an extent that sufficient poison may be liberated through its disintegration to produce noticeable toxic effects in the animal. This period of incubation is, therefore, in reality the crisis of the disease and the outcome depends solely on whether all germs have been destroyed before a lethal dose of the poison has been set free or not. It is during this period that individual resistance and acquired immunity are important factors acting by causing increased bacteriolysis and the destruction of all germs before a fatal dose of poison has been set free. During this time the temperature of the animal may rise to a greater or less extent or may remain stationary; the animal remains active, eats; its coat is not roughened and it appears in all respects as well as a normal animal. At the end of this period, however, the appearance changes. The animal becomes less active, it remains in one corner of its cage; its coat becomes roughened; it hangs its head and apparently enters into a state of stupor. At the same time the rectal temperature begins to fall abruptly, as can be seen from a study of Chart 1.

Indeed, this fall of body temperature is often the first marked symptom and, when occurring to a marked degree, it is invariably a bad omen. The body temperature will often fall from 101 F. to 94 F. or even lower within from 2 to 4 hours, and this fall is progressive and continuous until the animal's death, immediately preceding which a temperature as low as 87 F. or 86 F. is not uncommon. At the same time the animal shows signs of the most marked peritoneal inflammation, as is evidenced by rigidity and spasm of the abdominal muscles on pressure. At autopsy, the only gross lesion present is a marked hemorrhagic peritonitis with a large amount of bloody fluid containing intact red corpuscles and leucocytes in the peritoneal cavity. The parietal and visceral peritoneum are studded with minute punctiform hemorrhages. Hemorrhage is an especially prominent feature in the great omentum and is present to a less marked degree in the mesentery.

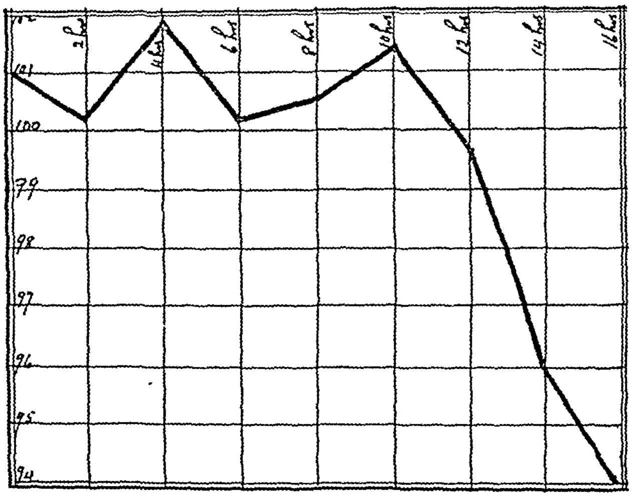

Chart 1.—Temperature curve of guinea-pig after inoculation with 1 c.c., 16 hr. bouillon culture of the colon bacillus. Death occurred 20 hours after inoculation.

### THE ACTION OF THE DEAD GERM.

The dead germ substance used in the following work was obtained by growing a large amount of the colon germ on tanks filled with agar for a period of two weeks at room temperature. At the end of this time the growth was removed from the tanks and extracted with absolute alcohol and ether. The crude bacterial substance thus obtained was reduced to a fine powder by pulverization in an agate mortar and was then ready for use.

It is interesting to note that the person who did the pulverizing was often quite seriously poisoned during the process unless he took the precaution of wearing a mask which hindered the inhalation of the powder. The symptoms of such poisoning were exceedingly interesting. The first thing noticed was a marked irritation of the nasal mucous membrane and a huskiness of the voice, due no doubt to the mechanical irritation of the inhaled powder. This was followed by a feeling of depression and malaise, and chilly sensations. Occasionally a decided chill would be experienced. It is unfortunate that no accurate observations of temperatures were taken in these cases. Nausea and even vomiting were occasionally noted. After a period of discomfort varying from 6 to 10 hours, during which the patient often complained of dull pain in the various joints, recovery would rapidly and completely take place.

On examining the powder obtained in this manner microscopically we found that it consisted of colon bacilli which still retained their morphologic characteristics and could still be stained by anilin dyes. On the other hand, cultures made from this powder have, of course, never given a growth. In other words, the bacillus has not been broken up by this treatment, but simply has been deprived of life and of the power of reproduction. It is worthy of note that neither by the action of alcohol, ether, physiologic salt solution, distilled water nor any simple solvent have we been able to extract a poison from the colon bacillus. Nor, again, can a poison be split off by the action of heat even when the germ substance is heated to 184 degrees C. in a sealed tube for 30 minutes. It is only when we make use of agents which will chemically break up the colon bacillus that we are enabled to obtain a poison apart from the rest of the germ substance. The powdered germ substance is not soluble, but can be held in suspension in normal salt solution and, since it can be boiled without appreciably affecting its toxicity, suspensions were always heated to 100 degrees for 15 minutes before injection in order to insure sterility.

This coarsely powdered germ substance killed guinea-pigs when injected intraperitoneally in doses of 1 to 40,000, body weight, and invariably proved fatal within 12 hours, usually causing death at the end of from 6 to 8 hours. Smaller doses did not produce a fatal result. On the injection of a fatal dose of the germ substance intraperitoneally, we noticed that the most marked change was in the length of the period of incubation. Thus, whereas in the case of the living germ from 8 to 12 hours passed before noticeable symptoms appeared, in that of the dead germ substance the animal almost invariably showed symptoms of illness at the end of 4 hours. In regard to the character of these symptoms it may be stated that they are similar in all respects to those induced by the living germ. The temperature remains the same or may rise slightly during the first two hours. At the end of the 4 hours it has begun to fall and there is a decided drop from then on until the time of death, provided the dose given is a fatal one. If a non-fatal dose has been injected intraperitoneally the temperature, as will still be seen from reference to the accompanying chart, has reached a minimum at the end of from 6 to 8 hours and has returned to normal again in from 12 to 20 hours.

Moreover, as a general rule, it may be stated that the fall in temperature in non-fatal cases seems to be directly proportional to the amount of bacterial substance injected. That this should be the cases seems to be only natural when we consider the fact that in this instance we have largely done away with that factor which is known as the individual resistance of the animal. As has been previously mentioned in the case of the living bacillus, the individual resistance plays an important part in determining the amount of poison which will ultimately be set free in the body. For example, whereas 1 c.c. of a 12-hour culture of our colon bacillus invariably proved fatal, .25 c.c. never did. The explanation of this is to be found in the fact that all animals were able to cause disintegration of all bacilli injected before a fatal dose of poison was set free. If now .5 c.c. be given some would recover, while others would die. In this case we would speak of the former as possessing a greater individual resistance than the latter. This simply means that, in the first instance the animal has possessed a sufficient quantity of bactericidal substance directly available to cause disintegration of all bacilli before the latter have multiplied to a sufficient extent to furnish enough poison to kill the animal on its liberation. On the other hand, those animals which succumbed did not possess quite enough of the bactericidal substance, or at least did not possess it in a form available for immediate use. When, however, the dead bacterial substance is given the dose of poison which the animal receives is a certain definite amount and is not capable of subsequent increase.

Accompanying the fall in temperature there is apparent lassitude, stupor and roughening of the coat. In cases in which many times the fatal dose has been given, the animals occasionally die within from 4 to 6 hours with convulsions, a feature which can now and then be observed after the injection of large quantities of the living bacillus. At autopsy we find a picture similar in all respects to that following inoculation with the living colon bacillus. There is a marked hemorrhagic peritonitis, the peritoneal cavity containing bloody fluid, together with unabsorbed bacterial cell substance, and the omentum and mesentery showing numerous punctiform hemorrhages. It is needless to state that in all cases cultures were made from the peritoneal cavity and heart's blood immediately after death, and these proved to be sterile. From this we see that practically the sole difference between the effects following inoculation with the living bacillus and the injection of the dead bacterial substance is a shortening of the period of incubation due, no doubt, to the fact that the intracellular poison is liberated much more rapidly and in greater concentration in the second case. As will be seen later, it is not so much the absolute quantity of the poison which is injected that determines the result, as the amount which is active at a given time.

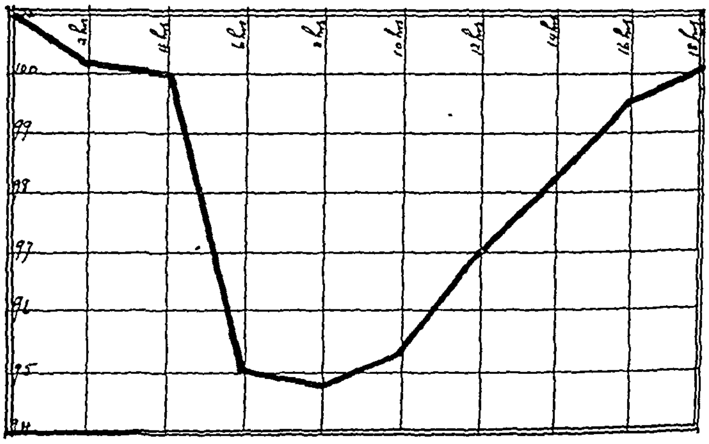

Chart 2.—Temperature curve of guinea-pig after intraperitoneal injection of non-fatal dose of crude bacterial cell substance.

### THE ACTION OF THE SOLUBLE POISON.

On heating the crude bacterial substance used in the above experiments with a 2 per cent. solution of sodium hydrate in absolute alcohol, precipitating with hydrochloric acid to remove the excess of sodium and evaporating the filtrate *in vacuo*, a residue is obtained which can be reduced to a powder which is freely soluble in water. The resulting solution is acid in reaction, and consequently is rendered neutral or slightly alkaline with sodium bicarbonate before it is injected into animals in order to avoid possible irritative effects from the acid. It may be stated here that all the poison contained in the colon bacillus is present in this portion, the residue after extraction with the sodium in alcohol being possessed of no toxic properties whatever. The poison is not obtained in a pure state and, as has been seen in the paper by Dr. Wheeler, it probably makes up but a small portion of the powder, there being more or less sodium chlorid certainly, and other constituents of the colon bacillus itself probably, present. Although we are certain that the poison is not pure, for reasons which will appear later, we are inclined to believe that it exists in an uncombined or very loosely combined state.

When doses of this powder are given intraperitoneally in amounts varying from 8 to 60 milligrams, according as to whether we have been careful to remove most of the common salt or not, a fatal result follows in guinea-pigs in from 30 to 60 minutes. Within 15 minutes after injection the temperature begins to fall and sometimes within half an hour has reached 94 F. or even lower. At first, after an interval of from 5 to 10 minutes immediately following the injection the animal appears restless, runs about the cage and shows a great tendency to scratch itself, this undoubtedly being due to itching sensations in the skin caused by irritation of the peripheral nerves. The animal then begins to show evidence of lack of co-ordination, which is rapidly followed by partial paralysis, which is especially marked in the hind extremities. This stage lasts for from 5 to 10 minutes, during the later part of which the animal usually lies quietly on one side. From this state the animal passes into what one might term the convulsive stage. These convulsions are usually clonic in nature and, as a rule, at first involve only the neck muscles, the head being momentarily drawn backward on the back. At first these convulsions are but slight in degree and are separated by considerable intervals of time. Soon, however, they become much more frequent and of much greater severity. Gradually they become more and more general in their extent until all the muscles of the body become involved in violent clonic convulsions. This stage when present invariably presages a fatal outcome. During a convulsion, or occasionally in the interval of calm, respiration ceases. The heart, however, continues to beat, at first with perfect regularity and no acceleration; indeed, the rate seems to be somewhat slower than normal. Gradually the beat becomes more and more feeble, the rate and regularity being preserved to the end. It is usually only after an interval of from 3 to 4 minutes after the cessation of respiration that the heart ceases to beat. As has been previously stated, a fatal issue, if it occurs at all, always results within one hour after injection and usually within from 30 to 40 minutes. This is to a large extent independent of whether the dose is the minimum lethal one or two or three times that amount. It is certainly entirely independent of the size of the pig. Death, of course, results at slightly different times with different batches of the poison, but even in this case the interval of time between injection and a fatal issue does not vary to any great extent. A dose which has proved to be the minimum fatal dose for one pig will almost surely prove to be the same for another. In other words, we have done away practically entirely with the period of incubation, and the poison acts so rapidly that individual resistance plays no part; hence, the animal acts almost with the exactitude of a chemical compound into which for all practical purposes it has been converted. The period of incubation has ceased to exist since the poison is no longer contained within either the dead or the living bacillus, but is present in a free and uncombined form, capable of uniting immediately with those body cells for which it may possess a special affinity.

At autopsy no special gross lesions can be made out. The peritoneum is smooth and shiny throughout and there is not the slightest evidence of either hemorrhage or even marked congestion in the omentum or mesentery. This is a very important feature and in marked contrast to the hemorrhagic peritonitis found after injection of either the living or the dead colon bacillus. We are inclined to believe that it is the distinguishing feature between the injection of the poison in a comparatively free and in a combined state. At one time we attempted to obtain the poison by a simpler method, omitting the extraction of the crude substance with ether. The result was that on evaporation of the alcoholic filtrate we obtained a sticky residue which it was utterly impossible to pulverize or to weigh. We were compelled, therefore, to content ourselves with evaporating it to a sticky mass, which was then immediately dissolved in water. The solution of the poison thus prepared was very toxic but, as a rule, took from one to two hours or even longer to bring about a fatal result. The animals showed the roughening of the coat and the stupor characteristic of the living and dead bacillus, but not as a rule seen in the case of the powdered poison. Furthermore, the majority of these animals showed during life unmistakable signs of peritoneal inflammation. They died in convulsions. At autopsy an intense hemorrhagic peritonitis was present, which was particularly prominent in the omentum and mesentery, and hemorrhage was often present in the capsules of the liver and the spleen. From the fact that death was slower in these cases and that the symptoms were more like those seen after inoculation with the living bacillus, we are inclined to believe that in this instance the poison, although split off from the bacillus itself, still exists in combination with some other cell group and that it is essential that this combination be broken up before the poison can be set free and can act on the body cell.

Another interesting fact in this connection is furnished by the action of the poison in solutions which have been rendered strongly alkaline by the addition of sodium bicarbonate. As has been previously stated, the aqueous solutions of the poison are slightly acid in reaction and in order to avoid the irritative effects which might follow their injection into the peritoneal cavity, they were neutralized or rendered slightly alkaline by the addition of sodium bicarbonate. At first no attempt was made to secure perfect neutralization, with the result that sometimes we were making use of neutral, while again slightly or decidedly alkaline solutions were employed. It was soon noticed, however, that the results obtained in the three cases were very different. Thus, whereas in the neutral or faintly alkaline solution the injection of 60 mgs. of the powder invariably killed, in the case of a stronger alkaline solution the same amount did not cause a fatal result, although the animals were very ill. From this fact it became evident that some change had taken place in the poison on standing in alkaline solution. In order to study this change more in detail, experiments were conducted with solutions of different degrees of alkalinity, with the results found in the following tables:

TABLE 1.

RESULTS WITH SOLUTION OF POISON BARELY NEUTRALIZED WITH SODIUM BICARBONATE AND PLACED IN INCUBATOR.

| No. of Animal | Dose of Poison. | Solution Kept in Incubator. | Weight of Pig. | Result of Injection. | Time of Death After Injection. |
|---|---|---|---|---|---|
| 1 | 60 mgs. | Fresh. | 325 gms. | + | 30 minutes. |
| 2 | 60 mgs. | 2 hours. | 330 gms. | + | 20 minutes. |
| 3 | 60 mgs. | 20 hours. | 370 gms. | + | 20 minutes. |
| 4 | 60 mgs. | 2 days. | 320 gms. | + | 15 minutes. |
| 5 | 60 mgs. | 4 days. | 350 gms. | + | 20 minutes. |
| 6 | 60 mgs. | 6 days. | 350 gms. | + | 15 minutes. |
| 7 | 60 mgs. | 8 days. | 320 gms. | + | 20 minutes. |

TABLE 2.

RESULTS WITH SOLUTION OF POISON RENDERED DECIDEDLY ALKALINE WITH SODIUM BICARBONATE AND PLACED IN INCUBATOR.

| No of Animal. | Dose of Poison. | Solution Kept in Incubator.. | Weight of Pig. | Result of Injection. | Time of Death After Injection. |
|---|---|---|---|---|---|
| 1 | 60 mgs. (barely neut.) | Fresh. | 350 gms. | + | 30 minutes. |
| 2 | 60 mgs. (decidedly alk.) | Fresh. | 370 gms. | Very sick for 2 hrs. | Recovered. |
| 3 | 60 mgs. | 2 hours. | 325 gms. | Not very sick. | Recovered. |
| 4 | 80 mgs. | 4 hours. | 310 gms. | Sick. | Recovered. |
| 5 | 120 mgs. | 24 hours. | 280 gms. | + | More than 5 hours. |
| 6 | 160 mgs. | 3 days. | 350 gms. | + | 7 hours. |

TABLE 3.

RESULTS WITH SOLUTION OF POISON RENDERED DECIDEDLY ALKALINE WITH SODIUM BICARBONATE AND KEPT AT ROOM TEMPERATURE.

| No. of Animal. | *Dose of Poison.* | Time at Room Temperature. | Weight of Pig. | Result of Injection. | Time of Death After Injection. |
|---|---|---|---|---|---|
| 1 | 60 mgs. | Fresh. | 350 gms. | + | 35 minutes. |
| 2 | 60 mgs. | 12 hours. | 265 gms. | Sick. | Recovered. |
| 3 | 90 mgs. | 2 days. | 280 gms. | Sick. | Recovered. |
| 4 | 120 mgs. | 2 days. | 460 gms. | + | 20 minutes. |
| 5 | 120 mgs. | 7 days. | 405 gms. | Sick for 5 hours. | Recovered. |
| 6 | 160 mgs. | 7 days. | 440 gms. | Sick for several *hours.* | Recovered. |

From the above tables it will be seen that the degree of alkalinity of the solution, and especially the length of time that the poison has stood in alkaline solution are very important factors in determining its toxicity. Thus in Table 1, in which the solution was barely neutralized, the poison seems to have retained its full potency after eight days in the incubator, whereas, in the case of the strongly alkaline solution, the potency has decreased markedly within from 24 to 48 hours. Again, there are great differences to be seen depending on whether the strongly alkaline solution has been kept at room temperature or at that of the incubator, the decrease in toxicity being much less rapid in the first instance.

A more detailed result of the effects on animals than it was possible to give in the above tables is not without interest. For example, in Table 2, No. 2, which received 60 milligrams immediately after the solution had been rendered decidedly alkaline, was very sick indeed, whereas No. 3, which received the same amount after two hours in the incubator, was only slightly affected. In the case of Nos. 5 and 6 the effects observed corresponded more closely to those obtained with the crude bacterial cell substance. It is *unfortunate that the time* of death was not ascertained in the case of No. 5. No. 6 did not succumb until seven hours after the injection. *On autopsy there was considerable fluid in the* peritoneal cavity and the vessels of the mesentery were markedly congested. The omentum was particularly injected and a few minute hemorrhages could be made out. The most plausible explanation of the above facts is found *in the theory* that the poison has not been destroyed in the alkaline solution but rather has entered into chemical combination with the alkali and that we are again dealing with it in a combined instead of in a free state. The fact that the same amount will not cause a fatal result is thus readily explained, since the outcome depends largely on the rapidity with which the poison acts. If it is present in a state of combination which must be broken up before it can exert its deleterious action on the body, and if this combination is only slowly decomposed, the nerve cells, for which it apparently has a special affinity, are not subjected to an overwhelming dose at one time, as in the case of the intraperitoneal injection of the free poison.

The results obtained in animals Nos. 5 and 6, Table 3, are very interesting. In these instances there were two distinct illnesses, the first becoming manifest within from 20 to 30 minutes after the injection and corresponding in all respects to that following a non-fatal dose of what we have for convenience termed the free poison. The animals were decidedly in better condition at the end of an hour; however, they then began to show symptoms similar to those noticed after the injection of the crude cell substance, i. e., roughening of the coat, stupor and slight convulsive movements. Recovery from this state did not occur until after the lapse of from 5 to 6 hours. It is evident that here the first signs of illness were due to some of the poison which had not as yet combined with the alkali and hence still existed in the free state, whereas the later symptoms were due to the effects of the slow liberation of the same poison from its combination. In this connection *it is interesting* to note that the combination between the poison and the alkali which apparently takes place in decidedly alkaline solutions is not an immediate one but occurs gradually and reaches a maximum only after the lapse of a considerable interval of time. That the rapidity with which this combination is effected depends largely on temperature is shown by the fact that it occurs much more rapidly in a solution kept *in the* incubator than in one which is allowed to stand at room temperature.

The *results* which follow the injection of a fatal dose of the soluble poison intraperitoneally have already been described. When a non-fatal dose has been injected the symptoms first noticed are similar *in all* respects to those following a fatal dose. The animal becomes restless, shows signs of irritation of the peripheral nerves, inco-ordination and partial *paralysis. The convulsive stage is not present,* as a rule, and when it is noticed is evidenced solely by slight movements separated by considerable intervals of time. We have never seen a case showing marked generalized convulsions which recovered. Recovery is apparently *rapid* and complete and within two hours after injection the animal which has been desperately ill appears as well as any *untreated animal.* The maximum effect is obtained within from 45 to 60 minutes in every instance. The study of the changes in temperature in these animals is *particularly* interesting. Within 15 minutes the rectal temperature has begun to fall and has reached a minimum within one hour.

It remains *stationary* for a short time and then begins to rise again and at the end of three hours after the injection has usually returned to normal or above.

On injecting the soluble poison subcutaneously, we find that the animals are able to withstand a much larger dose than when the poison is given intraperitoneally. Thus, in the case of a poison, 60 mgs. of which invariably killed when given intraperitoneally, it was found that 120 mgs. could be given subcutaneously without causing a fatal result. However, the injection of a solution containing 180 mgs. invariably caused death, the fatal issue occurring in about the same length of time as in the case of animals treated intraperitoneally. Thus, a dose of 180 mgs. always proved fatal in from one-half to three-quarters of an hour. The symptoms are practically identical with those following the intraperitoneal injection with the exception of the fact that the various stages are much more sharply defined. For example, the stage of peripheral irritation is much more marked. The animal soon after injection becomes very restless, runs around his cage and scratches his body. This itching seems, however, to be general from the outset and is not, apparently, more pronounced in the immediate neighborhood of the site of injection. If the animal has been injected under the skin of the abdomen, his attention is not necessarily first attracted to this spot, but he may begin by scratching his nose or one of the extremities. Another peculiar symptom, which is probably due to peripheral irritation and which is seldom seen in cases of intraperitoneal injection, is the tendency which the animals show to dig furiously in the shavings in the bottom of their cages. This feature is quite characteristic and is seldom absent in pigs which have been treated subcutaneously. The later stages are similar in all respects to those seen following the intraperitoneal injection. The animal shows symptoms of inco-ordination, lies on one side and finally develops convulsions, with failure of respiration, the heart continuing to beat regularly for some time after the complete cessation of respiration. Here also the symptoms are accompanied by a decided fall in the body temperature.

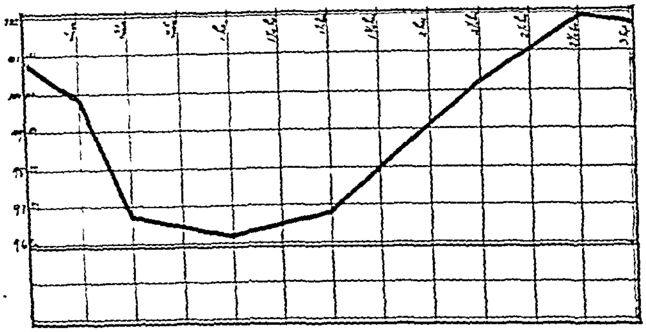

Chart 8.—Temperature curve of guinea-pig treated with 45 mgs. of the soluble poison intraperitoneally.

The results following the intravenous injection of the soluble poison are given in the following table:

TABLE 4.

| No. of Animal. | Amount of Poison Injected Intravenously. | Time of Cessation of Respiration After Injection. | Time of Cessation of Heart Beat After Injection. |
|---|---|---|---|
| 1 | 10 mgs. | 4 minutes. | 7 minutes. |
| 2 | 10 mgs. | Recovered. | |
| 3 | 10 mgs. | 3 minutes. | 6 minutes. |
| 4 | 10 mgs. | Recovered. | |
| 5 | 15 mgs. | 4 minutes. | 6 minutes. |
| 6 | 15 mgs. | 3 minutes. | 5 minutes. |
| 7 | 15 mgs. | 4 minutes. | 7 minutes. |
| 8 | 15 mgs. | 4 minutes. | 6 minutes. |
| 9 | 20 mgs. | 3 minutes. | 5 minutes. |
| 10 | 20 mgs. | 4 minutes. | 6 minutes. |
| 11 | 20 mgs. | 3 minutes. | 6 minutes. |
| 12 | 20 mgs. | 3 minutes. | 7 minutes. |

From the above table it will be seen that in all cases respiration ceased within four minutes after injection. Indeed, the respiratory embarrassment becomes pronounced immediately following the injection. The animal struggles for breath and there is violent retraction of the sternum. No convulsions are seen following the intravenous injection, this being probably due to the inhibitory influence of the anesthetic which has been used during the preparation of the animal for the operation. The failure of respiration in the absence of convulsions would seem to be conclusive evidence that the cessation of this function is due not to mechanical interference during a convulsive attack but to a direct paralysis of the respiratory center itself. Furthermore, the fact that the heart continues to beat in a perfectly normal manner for from two to four minutes after respiration has entirely ceased would tend to show that the immediate cause of death is asphyxia brought about by paralysis of respiration through the action of the poison.

This action of the heart after the cessation of respiration is exceedingly interesting, and is entirely analogous to that mentioned as following the intraperitoneal injection. The rate of the beat is decidedly lessened and at first the individual beats are stronger. They gradually become more and more feeble, however, until finally the heart stops in diastole, the rate after the preliminary slowing remaining unchanged until the end. It is worthy of note that in the case of intravenous injections the fall of temperature, which is so marked a feature after the intraperitoneal and subcutaneous injections of the poison, does not occur. The explanation of this fact is doubtless to be found in the very short interval of time which elapses between the injection and a fatal outcome. As regards the size of the lethal dose when given intravenously, we see that 10 milligrams often, and 15 milligrams invariably, proved fatal.

For purposes of comparison, we have always made use of the poison obtained from the same extraction in our intravenous, subcutaneous and intraperitoneal injections and have therefore been able to ascertain with a fair degree of accuracy the differences in dose required to bring about a fatal result in the three cases. Thus, whereas 60 mgs. represents the fatal dose when given intraperitoneally, it requires between 120 and 180 mgs. subcutaneously and only from 10 to 15 mgs. of the same poison to cause death when given intravenously. These differences are undoubtedly due to the rapidity of absorption in the various cases, and a fatal issue depends entirely on whether sufficient poison reaches the respiratory center at one time to cause cessation of respiration or not.

It has now been shown that a very powerful intracellular poison can be obtained from the colon bacillus. As has been previously stated, the results given in the foregoing experiments are those obtained with the poison from one extraction only. It must be understood that the poison is not in a pure state and when it is stated that 60 mgs. causes death when injected intraperitoneally we refer simply to the powder obtained from a given extraction. We have been able to procure powders which kill in doses of 15 and even as low as 8 milligrams when given intraperitoneally. This difference is in large amount due to the presence of sodium chlorid, since no attempt has been made to remove this salt in the case of the less toxic powders by redissolving in absolute alcohol.

There are several facts which lead us to believe that this poison is the one which causes the symptoms of illness and death in animals infected with the colon germ. Most of these facts have already been brought out, but it may not be out of place to briefly recapitulate at this point. As has been previously seen, the results obtained with the living germ, the dead bacterial substance and the soluble poison can best be explained on the ground that the toxic body in each case is the same. The differences in action are not differences in symptoms but simply in the rapidity with which these symptoms become manifest. While it is undoubtedly true that in animals dying with the minimum fatal dose of the living germ, the convulsive stage is not present or is only slightly marked, it is rarely absent in cases where from three to four times the fatal amount has been given. The sole difference between the living germ and the soluble poison which would appear to demand an explanation is the lack of evidence of a peritonitis in the latter case. This, we think, is best explained by the fact that in the case of the soluble poison the toxic substance exists in an uncombined form, which, of course, is not true in the case of either the living or the dead bacterial cell. The uncombined poison is rapidly absorbed from the peritoneal cavity and hence the irritative effects which would result from its retention in this place are absent.

As has been stated, one of the first signs of the action of the poison is a lowering of the body temperature. This hypothermia is usually present to a marked degree and is noticeable before any visible symptoms occur. It is therefore, the best index which we have as to the exact time at which the poison begins to exert its effect. In the same manner, the rise of temperature after the development of hypothermia is the first indication of recovery. Moreover, if in an animal with a subnormal temperature a rise occurs, it is an infallible sign of ultimate recovery, no matter how grave the general condition may appear to be at the time. We have laid great stress, therefore, on the changes in body temperature as furnishing the most delicate test of the action of the poison. It may be here stated that the body temperature of guinea-pigs is ordinarily fairly constant within certain narrow limits, and they are much more satisfactory animals to work with in this respect than are rabbits. Moreover, their temperature does not seem to be materially altered by the injections of sterile salt solution or of such inert substances as a suspension of pumice stone into the peritoneal cavity. As has been seen in the case of the living germ, it is only after the lapse of several hours that a fall in temperature occurs. This would indicate that it it is not until this time that sufficient poison is liberated to cause noticeable toxic effects in the animal. That it takes an appreciable time for the poison to be liberated from the bodies of the bacilli is well illustrated in the instance of the dead bacterial substance. Here it is only a question of dissolution of the bacilli and the setting free of the contained poison, and yet it will be noticed that an interval of at least two hours and usually longer elapses before there is any noticeable fall in temperature. The maximum effect in this case is reached between four and six hours, and if the dose has been a non-fatal one, recovery begins at the end of from eight to ten hours, as is indicated by the upward trend of the temperature curve at this point. In the case of the soluble poison, the toxic effect begins at once. Within fifteen minutes the temperature has begun to drop and within an hour has reached a minimum. Recovery then begins and within three hours the effect of the poison has worn off, as is best evidenced by the return of the body temperature to normal or above at this point.

As has been previously mentioned, it is not the purpose of this paper to prove that this poison is a true toxin; such proof can be established only by the demonstration of the production of an antitoxin. It is our intention to treat of this subject in a later paper. Again, it is not claimed as yet that the intracellular poison of the colon bacillus is specific in the sense that similar poisons can not be obtained from other sources. A comparison between the poison of the colon bacillus and certain poisons obtained from other proteid substances will form the basis of a subsequent paper.

Finally, as has been shown in the paper of Dr. Wheeler, this poison can be obtained from the colon germ when the latter is grown on a medium which contains no proteids. This would seem to indicate conclusively that the colon germ is able to build up its poison synthetically, since the latter is unquestionably a proteid body.

### CONCLUSIONS.

The conclusions which we have drawn from the above data may be summarized as follows:

1. The colon bacillus produces a powerful poison when grown on artificial media.
2. This poison is intracellular in character, and is contained within both the living and the dead bacterial cell.
3. The poison can be separated from the other constituents of the bacterial cell only by means which chemically break up the latter.
4. The peritonitis which occurs after intraperitoneal inoculation with the colon bacillus is due to the presence of the poison in a combined and not in a free state.
5. The intracellular poison of the colon bacillus causes a marked fall in the body temperature.
6. The poison of the colon bacillus apparently causes death by paralysis of respiration.
7. The intracellular poison is an essential group of the bacillus, and can be built up synthetically on proteid-free media.
8. This intracellular poison is the poison which causes death in animals inoculated with cultures of the living colon bacillus.

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## THE DIAGNOSIS OF SYPHILOMA OF KIDNEYS.*

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It will not be possible to consider all the syphilitic diseases of the kidney in the few minutes allotted to this subject. There can be no question that syphilis as an etiologic factor must be seriously taken into the consideration of the inflammatory kidney diseases. That syphilitic nephritis exists, however, is doubted by some of the best authorities, it being classed with nephritis, and syphilis is considered only as an etiologic factor. I do not wish to insist that a syphilitic treatment should be instituted in such cases; in fact, authorities differ; some advise strongly against the use of mercury in these conditions. It certainly seems, however, that if it be a syphilitic process it should be treated as such. Neither do I wish to discuss whether or not amyloid kidneys are based on syphilis as an etiologic factor.

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* Read before a joint meeting of Chicago Urological and Chicago Medical societies.

Virchow, in 1858, first reviewed the subject of syphilitic changes in the kidneys. It might be said that what he stated at that time is looked on to-day practically in the same manner. Beer, in 1858, was the first to report a typical case of gummata of the kidney. It was not until 1867 that his work on kidney syphilis appeared. These two works, in addition to Lancereaux's, which appeared in 1866, were the pioneers in this field of work, and we still consider them our standards. Seiler studied syphilitic gummata clinically as early as 1881. Numerous writers have taken this subject (gumma) into consideration, but much more literature can be found on the so-called syphilitic albuminurias.

Undoubtedly, it is syphiloma of the kidney which is of especial interest to the surgeon, and, as I have been asked to take up this topic, I have only mentioned the other forms of syphilitic kidney disease.

These gummatous manifestations of syphilis must naturally fall into the class of late syphilitic manifestations. If infection should have occurred in childhood, such manifestations could appear in early life. Middle life, however, is the time when such cases are most often expected. These facts are demonstrated by the statistics of Karvonen. This holds true, one might say, of all visceral (gummata) affections. In taking this condition into consideration, it is wise to disregard a negative history, which can never be taken as proof that the patient has never had syphilis, for there are certainly many instances in which the patient has not been made aware of his infection.

In individuals who have had syphilis and who have lacked treatment altogether, or have had but insufficient treatment, syphiloma of the kidney must always be taken into consideration in the differentiation of obscure kidney troubles. These affections may be concomitant with other forms of kidney diseases, and it must not be forgotten that only one kidney is usually involved in a gummatous process.

In the diagnosis, it is desirable to note the presence of or previous evidence of any gummatous manifestations elsewhere. It is essential to eliminate in the diagnosis all symptoms which may be caused by a simultaneous nephritis. In doing this, it has been practically *established that up to the present time no typical clinical array of symptoms exists on which we can base a diagnosis of gumma of the kidney.* Considering the pathologic anatomy, this readily can be understood. Lancereaux pointed out that scarcely any urine is secreted by that portion of the kidney involved in the gummatous process, and hence the clinical findings in the urine are not typical. Leucocytes and casts occasionally can be found microscopically, and the appearance of albumin is not unusual. These findings have been noticed to be intermittent. Cohnheim states that numerous miliary gummata may cause symptoms similar to those of an interstitial nephritis.

Finally, if syphilitic scars set in, they produce a severe atrophy of the kidney, and cause symptoms similar to those found in a severe grade of contracted kidneys. Such could be the course of the disease, but a kidney has never been demonstrated which shows all these different steps.

In case a gumma ruptures and the contents empty *into the pelvis of the kidney*, and finally into the bladder, would it be possible to make a probable diagnosis? In such cases, no general symptoms need accompany the passing of a dirty brownish-colored urine containing débris. No fever, no chills, no particular symptoms and no pain need follow such a rupture of a gumma. A cystoscopic examination and segregation or catheterization may collect the urine separately, and the functional capacity of each kidney may be looked into. In such a case, the capacity need not be greatly impaired. If, however, the kidney substance should be studied with miliary gummata, undoubtedly the sufficiency would be greatly influenced.

I might add that in such a case the microscopic examination might show red blood corpuscles, degenerated cells and detritus. As already stated, a concomitant nephritis might be present, and if so, the usual findings, both microscopic and chemical, would be expected.

After such a cavity empties itself, the course may be variable; the appearance of the above-mentioned microscopic findings with a trace of albumin may gradually or suddenly disappear, and if no nephritis coexists, one might not find even a trace of any pathologic product in the urine. As no symptoms need have been present, the whole trouble might pass over without any further untoward signs or symptoms. If other gummata are present, similar attacks may reoccur. The interval of breaking down may be short, or a long time may elapse before such another occurrence.

Undoubtedly, an interstitial nephritis might be expected in cases of repeated gummatous rupture. The symptoms of a gumma may be overlooked, especially if a diffuse nephritis or amyloid degenerative process coexists.

It is the object of this paper to point out the possibility of gumma of the kidneys, especially when dealing with "surgical kidneys," and where the amount of blood and débris is large or small, which would cause us to consider surgical interference.

The rôle played by the minute examinations, such as injection of indigo carmine, the production of artificial glycosuria inhibition of methylene blue, etc., can only be surmised, as I know of no case up to the present in which such findings are reported.

In establishing the diagnosis of syphiloma of the kidney, it must be remembered that if the gumma or gummata are of large size, the kidney with these irregularities may be palpated. There may be cachexia present, the patient may naturally have lost in weight. With all these signs and symptoms, it becomes necessary to differentiate from a malignant growth. The indolent character and the benign course of such a tumor, however, always speak for a luetic cause.

Wherever these findings are present, a nephrectomy must not be done until the possibility of syphilis has been excluded.

414 Marquette Building.

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Business Hints.—There is little chance of accumulating money from the practice of medicine. A small competence can be saved by diligence, frugality, and good management. The saving must be done between the ages of thirty and fifty. He should protect his family with adequate life insurance. He should never be foolish enough to speculate, but should stick closely to his own business. Accumulations of a lifetime have often been swept away in the foolish hope of large speculative returns.—N. H. Adams.

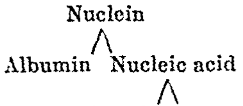
# THE PATHOGENESIS AND TREATMENT OF GOUT.*

E. SCHMOLL, M.D.
SAN FRANCISCO.

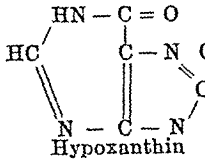
Since the classical investigations of Garrod we know that gout is characterized by the presence of uric acid in the serum and that the gouty attacks are caused by the precipitation of this acid into the joints. Every theory of gout must explain these characteristic features, and every pathogenic conception of the disease is based on these facts.

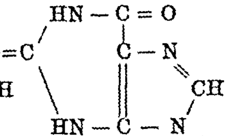
Before we enter the discussion of the different theries which attempt to explain the pathogenesis of gout, should like to give a short review of the formation of uric acid in physiologic conditions. While till about ten years ago uric acid was considered to be a product of imperfect oxidation of albuminous bodies, it has been proved since that uric acid has nothing whatever to do with albumin, but must be looked on as a specific oxidation product of the purin bodies derived either from the nucleic acid of the food or from the breaking down of the cell nuclei in the catabolism.

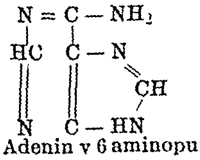
The nitrogenous bodies which are oxidized in metabolism belong to three categories: 1, Albumin; 2, paranuclein; 3, nuclein. Of these three only the nucleins are able to form uric acid in the following manner:

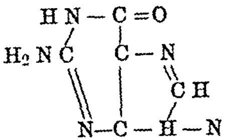


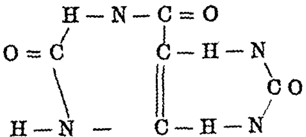
The purin bases consist of xanthin, hypoxanthin, guanin and adenin.


Hypoxanthin


Xanthin v 6 oxypurin


Adenin v 6 aminopurin


Guanin = 2 amino 6 oxypurin.


Uric acid.

Uric acid is formed by oxidation of those purin bodies; only when they are present can uric acid be found. The purin bodies may be ingested in the food and form what is called the exogenous part, or may be available for oxidation by the catabolism of the tissues and so form the endogenous part of the uric-acid excretion. The normal uric-acid excretion consists of about 0.2 to 0.3 gr. of endogenous uric acid, and of about 0.2 to 0.4 gr. exogenous. So nearly half of the uric-acid excretion is the result of tissue catabolism.

Such is the origin of the uric acid, which plays so important a rôle in the pathogenesis of gout by its presence in the serum and by the precipitation thereof into the tissues.

There have been several theories put forward to explain these two facts and they may be divided into two groups. The first one considers a retention of uric acid the cause of its presence in the serum, and of its precipitation into the tissues; the second considers the cause an increased production of uric acid.

The first of these theories was the one proposed by Garrod; his views may be summed up as follows: The formation of uric acid in gout varies within normal limits, but it is retained in the body owing to the inability of the kidneys to excrete the formed uric acid. This inability is mostly due to anatomic lesions, in some cases to functional changes in the kidneys. The retention is more marked at certain periods, during which the excretion is sometimes entirely stopped. In those cases the blood contains an amount of uric acid so great that it is unable to hold it in solution. Therefore, the blood gets rid of its excess of uric acid by a vicarious excretion into the joints.

The work of Garrod was based on the estimations made by the method of Heintze, which was proved later to lead to erroneous results.

Repeated investigations of metabolism in gout, by the method of Ludwig-Salkowski, the only one which allows an accurate estimation of uric acid, have shown that the results of Garrod could not be confirmed; while in some cases the uric-acid excretion is below normal or normal, it has been shown that there are cases of gout in which the uric-acid excretion exceeds the amount which is considered to be normal. To account for that, a view different from Garrod's was put forward. It explained the presence of uric acid in the serum and its precipitation into the joints by an increased production.

Neither of these explanations can be accepted for the following reasons: If one increases the formation of uric acid in a gouty patient by giving thymus gland in large amounts, the surplus of uric acid, the excretion of which can even attain 2 gr. in 24 hours, is eliminated by the kidneys without showing any difference from normal conditions. This experiment, which has been often repeated and confirmed since it was first published by me about ten years ago, shows that neither a retention nor an increased production can explain the symptoms of gout; a retention can not take place, because the kidneys are able to excrete a much larger amount than is formed in normal conditions; an increased production on the other hand, all other conditions being identical, could have but one result, an increased secretion.

Since these two theories fail to account for the features of gout, it is evident that their explanation can not be found by quantitative changes, and we must therefore look for the solution by qualitative changes. A close study of the physiologic excretion of uric acid will show in what direction those qualitative changes may be found. We have seen that in normal conditions uric acid is only formed by oxidation of the purin bases, and that at the same time as a result of the same process thymic acid is formed. Now it has been shown by Kossel and Minkowski that the uric acid is able to form a compound with thymic acid. The compound thus formed shows the peculiarity that the uric acid can not be detected by any of our reactions for it. It disappears completely for our methods of investigations and can not be precipitated.

There can be little doubt that in physiologic conditions this compound of thymic and uric acid is the form in which the uric acid circulates through the body and the blood. It accounts for one fact, otherwise unexplained, that we can not find any uric acid in normal blood, although we know that it must be present there, because it is not formed in the kidneys, only excreted. Therefore the morbid feature in gout is not the presence of uric acid in the blood, but its precipitability. Normal blood also contains uric acid, but we can not detect it, because it is combined with thymic acid: gouty blood may contain an amount not exceeding the normal, but it is precipitable and we therefore conclude not combined with thymic acid.

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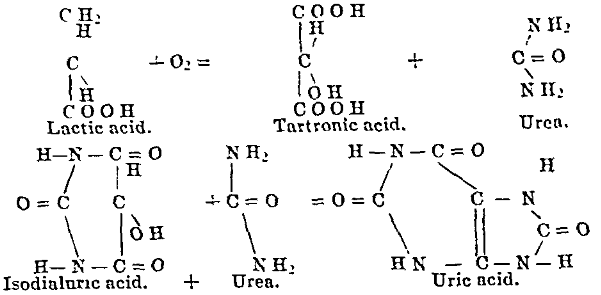
* Read before the San Francisco County Medical Society.

Hence the answer to the question why the uric acid is not combined with thymic acid we believe will clear up certain points in the pathogenesis of gout.

There are two possibilities: The first is that the uric acid is formed normally, that is by oxidation of the purin bases, but is for some reason not combined with thymic acid.

The second possibility is that the uric acid is formed synthetically and not by oxidation. We know that the largest part of the uric acid is formed synthetically in the avian organism, as has been shown by Minkowski and Wiener. On the other hand, we know that during infancy the human organism can synthesize the purin ring, and that even the adult body is able to form the same synthesis, I have shown in a paper in the Johns Hopkins Bulletin.[1] This formation can be shown by the following formulas:



The possibility of a synthesis of uric acid in the human organism is therefore to be granted.

To decide which possibility is realized in the gouty organism I had to make two series of experiments.

1. I had to prove that the uric acid has not lost its ability to form a compound with thymic acid.

To do this I fed several gouty patients with thymic acid and have been able to demonstrate that the output of uric acid is much increased during the medication with thymic acid. Therefore the uric acid combines with thymic acid and regains the physiologic conditions under which it is excreted in normal metabolism.

One could object to this experiment that the increase of uric acid is not due to an increased excretion of the uric acid already performed in the blood, but to an increased formation caused by the pyrimidin group in the thymic acid. Therefore I have checked my experiments in feeding a normal man with thymic acid, and in this case I have not obtained any increased output of uric acid. It shows that the increase in the output of uric acid caused by thymic acid in the gouty organism is due to an increased excretion of already present uric acid, not to increased formation.

2. The second point which I had to prove was the synthetic formation of uric acid in the gouty metabolism. I increased in a gouty patient the amount of paranucleins in the food and obtained a very marked increase in the uric acid output (0.15 0.45 gr). In the case of a normal man this experiment would not have influenced the uric acid, because the paranucleins do not contain any purin bases; it proves that the uric acid was formed synthetically.

Those experiments lead to the following conception of gout:

In gout the uric acid is not only produced by oxidation of purin bases, but also by synthesis; this synthesized uric acid, therefore, has not at its disposal the thymic acid necessary for its solution. It is the reason why we can detect uric acid in the serum. If the formation of the synthetic uric acid increases for one reason or another, there follows a saturation of the serum with this kind of uric acid, and as no thymic acid prevents it from precipitation it is deposited in the joints as tophi.

I believe that this view explains most of the features in gouty metabolism, but there are still some difficulties which have to be accounted for.

The principal one is the precipitability of uric acid in the serum in some other diseases, as in pneumonia; etc., and after administration of thymus. But all those cases can be explained by the fact that the molecule of the moleic acid, obtained either from the tissues or the food is split before the formation of uric acid, and that therefore the thymic acid can not form its compound with uric acid, because it is not present when uric acid is formed.

We know that in pneumonia the presence of uric acid follows the resorption of the exudate in the lungs, which takes place by autolysis of the inflammatory products demonstrated by Müller. By the autolytic process, however, the nucleic acid is split up into purin bases and the decomposition products of thymic acid. Therefore the uric acid formed by oxidation of the free purin bases has no thymic acid at its disposal with which to combine.

The same explanation can be applied to the uric acid after administration of thymus. We know that thymus contains a large amount of uncombined purin bases; by cooking a still larger amount is set free; those free purin bases resorbed without the complementary thymic acid yield precipitable uric acid.

The precipitation of uric acid in the case of nephritis may be explained in the following way:

The compound of uric acid and thymic acid is split up in the kidneys; it is shown by the precipitability of uric acid in the urine. It becomes free in the kidneys, but can not be excreted by the diseased epithelial cells, and is so returned into the circulation, where it becomes accessible to the precipitation by acids.

Our view of the formation of the uric acid explains also some very old observation, which offered some difficulties. It is the fact that meat in large quantities, and especially gamey meat, produces gouty attacks. Meat contains about 2 per cent. of free hypoxanthin which, having no thymic acid at its disposal, behaves like synthetically-formed uric acid. On the other hand, the gamey meat contains by the autolytic process which it has undergone, and which splits up the nucleins, a still larger amount of free purin bases.

Thus this old observation, which is recorded by every writer on gout, finds a rational explanation.

It was quite natural to apply the views resulting from our experiments to the treatment of gout. I have given the thymic acid to about 30 cases of gout, and have been able to observe some of them for several months. In about nine cases I have estimated the excretion of uric acid during the medication. I will not go into the details of the histories, but give a short résumé of the observations. As we have seen before, the excretion of uric acid is constantly increased during the medication. The increase varies between .17 and .42 gr. for 24 hours, amounting to from 15 to 45 per cent. of the daily excretion. This increase lasts for about ten days, and returns then slowly to the former amount. It can be easily explained by the fact that after the uric acid accumulated in circulating form is excreted, the daily amount of synthetically formed uric acid is too small to be demonstrated by our analytical methods. The patients felt very well during the medication, and I have never seen any gouty attack occur during the medication or for some time after the medication was stopped. The movement in the diseased joints became easier and in several cases the swelling of the joints lessened, and in two cases disappeared entirely.

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[1] E. Schmoll: The Chemical Origin of Leucocytes. Johns Hopkins Hospital Bulletin, July-August, 1904, p. 238.

I have only once had the opportunity of treating an acute gouty attack, with the results that the swelling of the great toe, and the elbow, in which two articulations the attack was localized, disappeared entirely within 6 hours. In the other cases, in which the swelling of the joints was due to deposits and tophi in the articulations, the thymic acid seemed to be without any effect on the enlarging. It can not be expected that the thymic acid should dissolve deposits, because it does not dissolve the uric acid, but prevents it from precipitation, and therefore prevents further attacks.

The dose of thymic acid to be given is about .25 gr. from 3 to 4 times a day. When I started my experiments, I gave doses of 3 or 4 grams in 24 hours, but observed in three cases that a local reaction followed the ingestion of that amount. Wherever uric acid was present a local inflammation started, which lasted for about 48 hours. In giving the aforementioned doses I never saw any local reaction following the medication. I observed in some few cases gastric disturbance, as a secondary effect on the organism; it can be easily avoided by giving the thymic acid after meals. The action of the heart or the kidneys was never interfered with, although special attention was paid to those two organs.

In closing, I should like to insist on the fact that this theory explains only two symptoms of the gouty metabolism; the precipitability of the uric acid in the serum and the uric acid deposits in the joints. It stands to reason that those two phenomena are only the result of a primary disturbance in the metabolism, the character of which we are unable to explain, but which shows its presence by the synthetic formation of the uric acid. For the same reason, the medication by the thymic acid would only be able to neutralize the effects of this primary disturbance, but does not pretend to cure gout.

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# THE INTERCOMMUNICABILITY OF HUMAN AND BOVINE TUBERCULOSIS.*

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ASHEVILLE, N. C.

Prior to Professor Koch's[1] memorable address in 1901 a considerable amount of evidence had accumulated which seemed to indicate that the human and the bovine tubercle bacillus were not identical and that the former was incapable of causing a generalized tuberculosis in cattle. Not only had the earlier work of Bollinger,[2] Chaveau, Günther and Harms, and others shown that the feeding of calves, swine and goats with human tuberculous material was unattended by ill effects in these animals, but, in more recent times, a number of experiments had been reported in which attempts to infect cattle with human tubercle bacilli were followed by absolutely negative results.

Baumgarten,[3] who in 1891 sought to determine the identity of human tuberculosis and *Perlsucht,* failed to produce the slightest trace of tuberculosis in a calf which he inoculated with human tubercle bacilli, whereas the control calf which was infected with bovine tubercle bacilli died at the end of six weeks of acute general miliary tuberculosis.

Later Gaiser[4] inoculated a calf, into the eye and also subcutaneously, with human tubercle bacilli; but the irritation of the eye infection, which was decided at first, soon diminished, and after three weeks the cornea had become again entirely clear and transparent. At autopsy, three months after infection, no tuberculosis was found, although the control animals, a rabbit and a guinea-pig, died five and a half months after inoculation, showing that the infecting material was virulent. In this country Frothingham[5] inoculated intraperitoneally two calves with a culture of human tubercle bacilli from the liver of a child. In both only slight local changes were produced. Of two other calves inoculated into the trachea, in one there occurred a local abscess in the muscles of the neck, with a few minute tubercles devoid of tubercle bacilli in the liver and in the lungs, while in the other no lesions whatever were to be found. Thus only local effects were induced. Dinwiddie[6] made similar experiments with like results, and finally Theobald Smith,[7] in an extensive comparative study of bovine tubercle bacilli and of human tubercle bacilli from sputum, demonstrated very clearly the restricted character and the lack of all tendency toward progressive disease of the lesions produced in cattle by bacilli of human origin.

While the results of experimental work up to the time of Koch's communication at the London congress indicated that human tuberculosis was not transmissible to cattle, the circumstantial evidence of clinical experience seemed to show that pearl disease constituted a grave danger to man, and, therefore, the medical profession as a whole very properly continued to urge the general adoption of stringent prophylactic measures against infection through the milk and meat of tuberculous animals. In this connection it should be remarked that Koch did not absolutely deny the possibility of human infection from bovine sources, but stated that from the results of the experiments carried out with Professor Schütz of the Veterinary College in Berlin, he felt justified in maintaining that human tuberculosis differs from bovine and can not be transmitted to cattle. This fact was abundantly evident from the pathologic specimens exhibited in London and of which Virchow[8] said: "The infections with human tubercle bacilli of the experiment animals have produced no lesions whatsoever which can be compared with bovine tuberculosis." On the other hand, regarding the question of infection of human beings with bacilli of bovine origin, in the light of the infrequency of the occurrence of primary intestinal tuberculosis in man, Koch reasoned by analogy that the bovine tubercle bacillus bears the same relation to human tuberculosis that the human tubercle bacillus does to bovine tuberculosis.

For the further investigation of the subject Koch himself suggested the study of cases of primary intestinal tuberculosis and the isolation of the tubercle bacilli from the lesions in such cases, as an aid in the determination of the question, inasmuch as if the tubercle bacilli thus obtained had a bovine origin this would be shown by their characteristic behavior on artificial culture, as well as by their pathologic effect on cattle. His own experience, however, as also the rarity of the findings of primary intestinal tuberculosis in various pathologic institutes in Germany, warranted him in the statement that the frequency of human infection from bovine sources was probably not greater than that of congenital tuberculosis, and that, therefore, preventive measures against bovine tuberculosis were not necessary in the degree then considered essential, since the simple boiling of the milk would protect infants in whom cow's milk was substituted for that of the mother, whereas prophylaxis against human tuberculosis was still greatly inadequate and in this direction the chief effort should be made.

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* Read before the Buncombe County Medical Society at Asheville, N. C., 1904.

[1] Koch, R.: Deut. med. Wochft., vol. xxvii, 1901, No. 33, p. 549.

[2] Bollinger: Arch. f. exper. Path. u. Pharm., vol. i, 1873, p. 356.

[3] Baumgarten: Jour. of Tuberculosis, vol. v, 1903, No. 1, p. 1.

[4] Gaiser: Inaug. Diss., Tübingen, 1893.

[5] Frothingham: Report of Mass. Cattle Commission for 1897.

[6] Dinwiddie, R.: THE JOURNAL A. M. A., vol. xxxix, 1902, No. 25, p. 1574.

[7] Smith, *Theobald:* *Jour. of Exper. Med.,* vol. iii, 1898, p. 451.

[8] Virchow: Berl. klin. Wochft., vol. xxviii, 1901, No. 31, p. 818.

Koch did not consider the question entirely closed, however, and it was through his [illegible] that more extensive experiments were [illegible] Imperial Health Bureau. From the time of the organization of a special commission for this purpose until last spring, when the commission made report, a great number of experiments were performed, chiefly to determine the relation of human tuberculosis to that of cattle. During this time cases of primary intestinal tuberculosis were carefully sought for and, also at the instance of Koch, the pathologic institutes in Prussia were requested to report every case found.

During the past three years a large number of experiments have been reported by numerous investigators, the majority of whom claim positive results in the transmission of human tuberculosis to cattle. As a whole this work is more or less subject to just criticism, and there is scarcely one of these experiments in which there have not been possible sources of error. Before examining the evidence, however, let us look back to the experimental investigations of Villémin's time when so much confusion was rife as to the infectious nature of tubercle.

By the inoculation of animals with tuberculous material which had presumably been rendered innocuous before introduction, also with non-tuberculous material from cadavers and even with all sorts of indifferent substances, the contemporaries of Villémin caused lesions which in minute detail simulated true tuberculosis.

For example, by inoculation in the necks of experiment animals of tubercle and of material from caseous lymph glands which had been soaked for months in alcohol and had in addition been boiled immediately before inoculation, Waldenberg[9] succeeded in producing miliary gray nodules in the internal organs. Experimental inoculations made by Wilson Fox[10] in 117 guinea-pigs and in 12 rabbits in which non-tuberculous substances were introduced subcutaneously, produced not only pseudotuberculous lesions locally and in the neighboring lymph glands, but also in multiple internal organs. Panum[11] in studying embolism noted in the course of his experiments that when he introduced foreign substances (metallic mercury, wax globules, and even air) into the vessels of animals, minute foci occurred with great regularity which were apparently analogous with miliary tubercles. Like results were obtained by Lebert and Wyss[12] by the intravenous injection of coal dust and quicksilver. Again Cohnheim and Fraenkel[13] injected into the jugular vein of guinea-pigs fresh blood of another healthy guinea-pig with the production of typical miliary pseudotuberculosis of the lungs and liver. Likewise, these same authors introduced into the peritoneal cavity of guinea-pigs bits of filter paper, lint, gutta-percha, raw and vulcanized rubber. Some of the animals died soon of general peritonitis, but others gradually became emaciated and died, and in these autopsy showed disseminated pseudotuberculous lesions of the peritoneum, liver and lungs. In more recent years it has been shown by Prudden and Hodenpyl[14] and others that dead tubercle bacilli, when introduced into the serous cavities or injected intravenously in animals, are capable of producing histologic tubercle.

In the light of these and of numerous other similar experiments which were performed prior to the discovery of the tubercle bacillus, some of the sources of error in the attempts which have recently been made artificially to transmit human tuberculosis to cattle become at once apparent.

Such evidence Baumgarten[3] had in mind when he pointed out at the International Tuberculosis Conference in Berlin that all the experiments which had been made up to that time had been performed in an objectionable manner. As Baumgarten there insisted, inoculations should not be made otherwise than subcutaneously, and the number of tubercle bacilli introduced must not be too large, for only thus can it be shown whether a tuberculous infection takes root at the point of inoculation and extends therefrom within the organism through the lymphatics and the blood stream. For this purpose intravenous injections are useless, because, even with dead tubercle bacilli, a disease can be produced similar to tuberculosis and which can result fatally, not because of the existence of true infectious tuberculosis, but on account of embolism due to foreign bodies which in this instance would be tubercle bacilli. Experience having shown that by the intraperitoneal application of dead tubercle bacilli, and even of indifferent substances, an affection simulating true tuberculosis can be engendered on the peritoneum. it follows that intraperitoneal infection must be avoided.

Keeping in mind the possible sources of error as indicated above, we may now proceed to examine the evidence which has recently been brought forward for the purpose of disproving Koch's proposition.

The following experiment is that of Professor Orth:[15] A piece of tuberculous kidney of a rabbit, which had been infected with a pure culture of tubercle bacilli obtained from a human phthisical subject, was placed in the peritoneal cavity of a calf. Twenty-six days after inoculation the calf died of general tuberculous peritonitis. At autopsy the peritoneal serosa was covered with miliary and submiliary gray nodules; the great omentum, the intestinal serosa and the parietal layer of the peritoneum were studded with miliary nodules and there was marked swelling of the mesenteric, portal and cardiac lymph glands. In addition there was an enlarged gland at the left knee joint and the left shoulder gland was swollen but of these glands the author says that the evidence of tuberculosis was uncertain. The other organs were free from tuberculous changes. Microscopic examination of the peritoneal nodes and of the various glands showed tuberculous granulation tissue containing giant cells.

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[9] Waldenberg: Die Tuberculose, die Lungenschwindsucht und Scrofulose, Berlin, 1869.

[10] Fox, Wilson: The Artificial Production of Tubercle in the Lower Animals, London. 1868.

[11] Panum: Virchow's Arch., vol. xxv, 1862, pp. 308-433.

[12] Lebert and Wyss: Virchow's Arch., vol. xl, 1867, pp. 142-551.

[13] Cohnheim and Fraenkel: Virchow's Arch., vol. xlv, p. 216.

[14] Prudden and Hodenpyl: New York Med. Jour., June 6 and June 20, 1891.

[15] Orth: Berl. klin. Wochft., vol. xxxix, 1902, No. 34, p. 793.

From the result of this experiment Orth insists that he has produced not only a local but a progressive tuberculosis in the calf and that human tuberculosis is transmissible to cattle. The objection to intraperitoneal infection has been stated above, and that Orth has produced nothing more than could have been produced by the introduction of dead tubercle bacilli or of indifferent foreign substances there can be no doubt, as is shown by the experiments which have been cited, and in which lesions were produced in the experiment animals not only of the peritoneum, but of the liver and lungs as well.

Positive results in the transmission of human tuberculosis to cattle are also claimed by Fibiger and Jensen.[16] In three of their experiments in which the material used for inoculation originated from cases of apparent primary intestinal tuberculosis, calves were infected intraperitoneally. The results in these instances, therefore, need not be further considered. In two other cases the subcutaneous method was employed and these will be discussed in their proper place. Intraperitoneal infections have been made also by Ravenel,[17] Crookshank,[18] de Schweinitz, Dorset and Schroeder,[19] and others, with supposed positive results. These experiments are of course subject to the same criticism as that of Orth.

The following experiment of Ravenel[17] is of especial interest since it illustrates so perfectly the objection to the intravenous method of inoculation: From a child in which the evidence of primary intestinal tuberculosis seemed clear guinea-pigs were inoculated intraperitoneally with an emulsion of the mesenteric glands. From one of the guinea-pigs a culture was made and a suspension of 5 c.c. of the fifth and sixth generation of this culture was injected into the right jugular vein of a calf which had not responded to a tuberculin test. On the next day the temperature had risen to 103.2 F.; after a slight remission it rose to 103 F. on the seventh day after inoculation and continued to rise each day, reaching 106.4 F., after which it fell slightly until death, which occurred on the seventeenth day. Ravenel further stated that the animal showed marked illness during life, the respiration reaching 68 a minute.

At autopsy both lungs were thickly studded throughout, with remarkable uniformity, as Ravenel says, with miliary nodules. The left lung was pneumonic owing to the position of the calf for some time before death. The bronchial and mediastinal glands were much enlarged and soft. The liver showed several nodules on the surface, the spleen showed slight changes and the kidneys were normal.

No argument is needed to show that this calf succumbed to an embolic affection, a result which could have followed just as certainly had entirely indifferent substances been employed instead of the culture.[20]

A third experiment made by Ravenel in which a grown cow succumbed on the seventeenth day after receiving 5 c.c. of a suspension of this same culture, 2.5 c.c. intravenously and 2.5 c.c. intraperitoneally, is doubly objectionable and needs no further comment.

The intravenous method was also employed by Arloing,[21] and in one of their experiments by de Schweinitz, Dorset and Schroeder.[19]

Among the experiments in which the successful transmission of human tuberculosis to cattle is alleged, subcutaneous inoculation has been the mode of infection in but a few instances.

Fibiger and Jensen[16] have communicated the following case: A four-months-old boy, who had been artificially fed after the age of five weeks, succumbed to tuberculous enteritis. At autopsy, most extensive ulcerations were found in the intestinal tract; the largest, in the ileum, penetrated to the muscularis and extended transversely nearly one-half the circumference of the bowel. There were two other similar ulcers higher up. The vermiform appendix was also ulcerated and the entire colon from the valve of Bauhin into the rectum presented sharply circumscribed ulcers. The mesenteric glands were caseous, and numerous miliary tubercles were present throughout both lungs.

By rubbing up a caseous mesenteric gland from this case, in normal salt solution a turbid fluid was prepared which contained comparatively few tubercle bacilli, but other germs. Of this fluid a "few" c.c. were injected into the neck of two young calves. Both these animals died of a putrid embolic affection of the lungs. A third calf which was injected into the neck with material from one of the former died several weeks later. The postmortem showed at the point of inoculation a large tumor of fibrous tissue containing many caseous nodules and a large excavation filled with necrotic, caseous, purulent and disintegrated, foul-smelling tissue. The neighboring glands were enlarged and also the middle and deep cervical. The pleura and pericardium presented fine, red connective tissue formations. The lungs contained innumerable small nodules. There were further caseous processes of the bronchial and mediastinal glands. isolated caseous nodules in the myocardium and scattered tubercles in the liver, spleen and kidneys, etc.

I can not agree with the authors that in their work Koch's propositions have found their refutation. They have themselves shown that the two calves first infected died of putrid pulmonary embolism. It is to be regretted that no statement as to the exact amount of fluid injected appears, but the results in these animals are more than suggestive that in making the subcutaneous injections an unintentional introduction of some of the material into a vein occurred. The very generally distributed small nodules in the lungs of the third calf, and the dissemination of lesions practically throughout the whole organism, awaken the suspicion at least that such an accident happened in this instance also.

Furthermore, the presence of other pathogenic bacteria in the material used for infection renders the experiment additionally questionable, for how much these may have contributed to the effects produced is a matter of conjecture. But above and beyond these sources of error the experiment is incomplete. The tubercle bacilli should have been isolated from the dead animals, their cultural and morphologic characteristics should have been identified and their degree of pathogenicity should have been demonstrated by infection of other cattle, in order to determine whether or not the tuberculosis in the child had in the first instance a bovine origin. This, unfortunately, Fibiger and Jensen failed to do, and the experiment in consequence has no value as evidence on either side of the question.

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[16] Fibiger and Jensen: Berlin klin. Wochft., vol. xxxix, 1902, No. 38, p. 8[illegible].

[17] Ravenel: Univ. of Pa. Med. Bulletin, May, 1902.

[18] Crookshank: The Lancet, London, vol. ii, Nov. 2, 1901, p. 1176.

[19] De Schweinitz, Dorset and Schroeder: Amer. Med., vol. iv, 1902, No. 22, p. 8[illegible]0.

[20] Compare the experiences of Panum, Cohnheim and Fraenkel, and Lebert and Wyss, which have been referred to in the preceding pages of this paper.

[21] Arloing: Cited by Baumgarten.

The subcutaneous method of infection was resorted to in one instance by de Schweinitz, Dorset and Schroeder.[19] They inoculated a heifer back of both shoulders, respectively, with a piece of the lung and a piece of the intestine of a child dead of generalized tuberculosis. Autopsy six months later showed at the seat of inoculation small multiple abscesses in the skin. The regional glands were enlarged and contained many necrotic foci. On the pleura of the lung numerous pale red excrescences were found and similar growths were sprinkled over the diaphragm. The authors claim a positive result in this case, but, inasmuch as only local non-progressive changes were produced the experiment rather confirms Koch's views than otherwise.

The positive experiment of Max Wolff[22] needs but brief mention here. It is sufficient that with material from the same case of primary intestinal tuberculosis. Koch inoculated calves with diametrically opposite results, and that of the specimens which Wolff exhibited at the Berlin tuberculosis conference Baumgarten[3] suggested that the lesions were older than the experiment.

In addition to these which have been mentioned, positive results have been claimed by Schottelius,[23] Delepine,[24] Westenhöffer,[25] Karlinsky and others.

On the contrary, absolutely negative results are reported by Latta and Casco,[26] Cipolina,[27] Moeller,[28] Park, Hallock and Wilson,[29] and Pearson and Gilliland.[30]

In the experiments made at the Imperial Health Bureau[31] since the Prussian commission was appointed, a large number of cattle have been used in the elucidation of the question of the communicability of human tuberculosis to cattle. More particularly has primary intestinal tuberculosis of man been studied, as suggested by Koch, with a view of determining whether bacilli from such cases can produce bovine tuberculosis. In all, 57 cattle were infected with 41 cultures of tubercle bacilli from 40 different sources. Of these 41 cultures, 4 corresponded culturally and morphologically with the bovine type and by subcutaneous inoculation caused generalized tuberculosis in cattle. Three of these 4 cultures were obtained by passage through the guinea-pig from the mesenteric glands of children in whom it was reasonable to conclude that infection had occurred primarily through the intestine. The ages of the children were 3½, 5½ and 6 years, respectively.

These three cases in which the primary intestinal infection is attributed to bovine sources are, however, not entirely free from all objection. It is possible that the disease of which the children died may have been due to infection with human tubercle bacilli, and bacilli of pearl disease may also have reached the mesenteric glands through milk without having produced changes beyond localized lesions in these glands. An illustration in point is to be found in the experience of Kruse[32] while studying the relation of avian and mammalian tuberculosis. Cultures which were isolated from guinea-pigs which had generalized tuberculosis corresponded exactly in cultural and pathogenic characteristics with those of avian tubercle bacilli. These cultures when inoculated into chickens caused generalized tuberculosis, but when reinoculated into guinea-pigs they produced only local changes at the point of infection. Similar relations may have existed in the children from which the three bovine cultures were isolated, but the converse experiment not being permissible in man, we can only reason by analogy.

Granting that the primary infection of these three children was of bovine origin, examination of the autopsy findings of the 40 cases from which the material for inoculation was obtained shows that, in addition to these 3, there were 7 other cases of primary tuberculosis of the intestine and mesenteric glands in which the disease could not be transmitted to cattle. Thus of 10 cases of primary intestinal infection, only 0.3 had a bovine origin.

It is generally admitted that infection through milk or other food products of tuberculous animals can be rightly assumed only when the intestine or mesenteric glands are first involved, but such cases are far from frequent.

Among 1,407 autopsy records of the Tübingen Pathologic Institute, Grosser[33] found only 1 case. Eisenhardt,[34] in 1,000 autopsies of tuberculous subjects, also found but a single case. During 1902 and 1903, out of 5,142 necropsies at the mortuary in Hongkong, 35 per cent. of which were children under 5 years, Hunter[35] found only 5 cases. Bovaird,[36] basing his conclusion on the statistics of the New York Foundling Hospital, estimated that primary intestinal tuberculosis occurs in about 1 per cent. of cases among tuberculous children in New York. Northrup[37] reports 125 autopsies of children, in every one of which the bronchial glands were tuberculous, but in only one of which there was involvement of the mesenteric glands. Orth[38] reports 4.25 per cent. of primary intestinal affections in 47 children from the age of 3 months to 15 years.

Baginsky,[39] in 933 postmortem examinations of tuberculous children, never found the intestine affected without simultaneous disease of the lungs and bronchial glands.

To these findings and to those of many others the extremely high percentage of Heller and his pupils, Wagener and Hof, and the report of Councilman, Mallory and Pearce from Boston stand sharply contrasted. Of 714 children who had died of diphtheria, Heller[40] found 140 tuberculous, and of these 37.8 per cent. showed primary tuberculosis of the intestine and mesenteric glands. Wagener,[41] the assistant of Professor

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[22] Wolff, Max: Deut. med. Wochft., vol. xxviii, No. 32, p. 566.

[23] Schottelius: Münch. med. Wochft., vol. xlix, 1902, No. 39, p. 1610; Ziegler's Beiträge, vol. xxxiii, Nos. 1-2, p. 32.

[24] Delepine, Sheridan: Brit. Med. Jour., Oct. 26, 1901, p. 1224.

[25] Westenhöffer: Deut. med. Wochft., vol. xxix, 1901, No. 14, Ver. Beilag., p. 110.

[26] Latta and Casco: Tipografie Tiberina, Roma, 1903; Ref., Centralbl. f. Bakt., vol. xxxiv, 1904, Nos. 22-23, p. 707.

[27] Cipolina, A.: Berl. klin. Wochft., vol. xl, 1903, No. 8, p. 163.

[28] Moeller: Deut. med. Wochft., vol. xxviii, 1902, No. 40, p. 718.

[29] Park, Hallock and Wilson: N. Y. Univ. Bull. of the Med. Sciences, vol. ii, 1902, No. 3, p. 142.

[30] Pearson and Gilliland: Phila. Med. Jour., vol. x, 1902, No. 22, p. 843.

[31] Kossel, Weber and Heuss: Tuberculose-Arbeiten aus dem Kaiserlichen Gesundheitsamte, 1904, No. 1.

[32] Kruse: Cited by Weber and Boffinger, Tuberkulose-Arbeiten aus dem Kaiserlichen Gesundheitsamte, No. 1, 1904.

[33] Grosser, K.: Inaug. Diss., Tübingen, 1900.

[34] Eisenhardt: Cited by Goldschmidt, Monogr., Leipzig, 1894.

[35] Hunter, Wm: Brit. Med. Jour., May 14, 1904, p. 1126.

[36] Bovaird: Arch. of Ped., December, 1901.

[37] *Northrup; Med. News, vol. lxxxv, 1904, No. 7, p. 330.*

[38] Orth: Berl. klin. Wochft., vol. xli, 1904, No. 11, p. 265.

[39] Baginsky: Deut. med. Wochft., vol. xxviii, 1902, Ver. *B.* No. 35, p. 270.

[40] Heller: Deut. med. Wochft., vol. xxviii, 1902, No. 39, p. 696.

[41] Wagener: Münch. med. Wochft., vol. l, 1903, No. 48, p. 2095.

Heller, reports on 600 autopsies made at the Kiel Institute during the year 1903. There were 76 subjects between 1 and 15 years of age, and among these alone there were 13, or 17.1 per cent., which showed primary intestinal or mesenteric tuberculosis. Hof,[42] who carefully worked out the 15,000 sections of the years of Heller's directorship, found primary intestinal tuberculosis without involvement of the lungs in 16.6 per cent. of the tuberculous subjects, and in addition in 8.5 per cent. in which miliary tuberculosis of the lungs appeared to have been secondary to intestinal lesions.

In this country, Councilman, Mallory and Pearce,[43] among 220 cases in which death was due to diphtheria, found tuberculosis in 35 with evidence, according to their interpretation, of primary infection through the intestine in 14, or 37.1 per cent.

The marked contrast in the statistics of Heller and his pupils and of those from Boston, as compared with those of others. can only be reconciled by the position of the observer as to what shall be interpreted as a primary and what as a secondary process. A differentiation of the pathologic lesions in the cadaver must ever be difficult and often impossible. for a tuberculous process, as a rule, does not remain confined to the first point of localization or to the regional glands.

The autopsy findings of Heller and his pupils show that they have classed as instances of primary intestinal tuberculosis cases in which the presence of cicatricial changes in the bowel was suggestive of antecedent tuberculous ulceration, and even cases in which the only lesions were calcareous or caseous mesenteric glands wherein neither histologic tubercle nor tubercle bacilli were demonstrated.

Inasmuch as many of these lesions may have had other than tuberculous origins, it is not likely that other pathologists have included like cases in their statistics. But, granting that these lesions actually represented obsolete tuberculous processes, it might be argued that they are suggestive of infections of bovine origin, which had not advanced beyond the seat of primary localization or the nearest glandular structure, a behavior which would bear a striking analogy to that of human tubercle bacilli when inoculated into cattle.

Still, the frequency of primary tuberculosis of the intestine is not a measure of the frequency of bovine infection, as is shown by the fact that only 3 out of 10 cases of primary intestinal tuberculosis included in the material of the Imperial Health Bureau were apparently caused by bovine tubercle bacilli. If now we estimate the frequency of primary intestinal infection from all sources at all ages at 1 per cent., which is probably a high enough average, then the proportion of such cases attributable to bovine sources is represented by 0.3 per cent. Infection with bovine bacilli occurs, then, in but 1 of 333 cases of all tuberculosis in man, and even this proportion would undoubtedly prove far in excess of actual occurrence if the true relation could be known, for in none of the 10 cases of primary intestinal infection could a bovine origin be shown in an individual above the age of 6 years.

From the foregoing analysis of the evidence which has been submitted up to the present time, it is apparent that Professor Koch's statement that cattle are insusceptible to human tuberculosis stands unrefuted. Neither have the experiments in cattle in regard to the relation of bovine infection to the frequency of primary intestinal tuberculosis, shown that the danger to man from the tuberculosis of cattle is by any means a paramount one as compared with that of human tuberculosis. For further aid in the determination of this, the vastly more important consideration, we may now proceed to study the question of infection of man through the milk and meat of tuberculous cattle, from the standpoint of clinical experience and other circumstantial evidence.

In regard to milk infection, a most unique position is taken by Behring,[44] who insists that practically all tuberculous infections in man have a bovine origin, and who has even gone so far as to announce that not a single case of epidemiologic human infection has been proved. Behring holds that the bovine tubercle bacillus is more virulent for man than the human tubercle bacillus. According to him, the permeability of the intestinal mucosa in early infancy (up to the second month) permits the penetration and passage of the bovine tubercle bacillus, ingested in milk, directly to the lymphatic glands. Here it lies dormant, causing no alterations in the tissue, in most instances, until with the physiologic changes of puberty or after intercurrent affections it is awakened to destructive activity. This period of latent infection constitutes the so-called predisposition, and without such infection in infancy Behring says there can be no phthisis in the adult.

In Behring's own statements a contradiction is at once apparent. If, as Behring says, the bovine tubercle bacillus is more virulent for man than the human tubercle bacillus, a more virulent disease must result from bovine than from human infection, and, moreover, if practically all infections occur in nurslings from infected milk, then the greatest prevalence of tuberculosis should be in the years of infancy and early childhood. Inasmuch as tuberculosis is well known to pursue a rapidly fatal course in infancy and in early childhood,[45] the greatest mortality should also occur in the earliest periods of life. Tuberculosis, however, is rare in infancy, as the observations of Westenhöffer,[46] Froebelius,[47] Baginsky,[48] Biedert,[49] Lannelongue,[50] Heubner,[51] and all pediatrists show. Moreover, the mortality increases from birth until about the fifth year and then declines to the age of puberty, after which it again steadily increases with advancing age. These facts are not to be explained by a dormancy, for varying periods of time, of bovine bacilli which have been deposited in the tissues, but by the opportunities for epidemiologic infection; and here, in passing, it should be remarked that not even dead tubercle bacilli can remain in the tissues without causing histologic alterations. In the first years of life the child is intimately associated with mother and nurse, who are but too often tuberculous. Now, the opportunity for constantly repeated infections is responsible for the increasing mortality rate. When the child reaches school age the contact with tuberculous elders becomes less close and less frequent, hence the decrease in the death rate after the fifth year. The increase of deaths from tuberculosis after puberty is in turn explained by increasing exposures to infection: for after the school years are past the individual comes in contact with the world at large, and in his association with a greater number of individuals, socially or in occupation or business, is again subjected to more numerous and more frequently repeated infections. In respect to this question the observations of Epstein[52] have an especial interest. Epstein in four years did not find a single case of tuberculosis in the autopsy material of the foundling asylum at Prag, where the children were received directly from obstetric clinics without having been associated with tuberculous mothers. In one series of 200 autopsies of children between the ages of 10 weeks and 10 months he found 9 cases of tuberculosis. Two of these children had been given out of the asylum for care and subsequently had been returned; one of the foster mothers was tuberculous; the other was not examined. The other seven children had been placed in the institution because their mothers had to be taken to the hospital on account of phthisis.

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[42] Hof: Diss., Kiel, 1903.

[43] Councilman, Mallory and Pearce: Diphtheria, Boston, 1901, cited by Heller.

[44] Von Behring: Beiträge zur Exper. Therapie, 1904, No. 8; Deut. med. Wochft., vol. xxix, 1902, No. 39, p. 689; Berl. klin. Wochft., vol. xli, 1904, No. 4, p. 90; Wien. klin. Wochft., vol. xvi, *1903, No. 12, p. 337.*

[45] H. Schmidt (Diss., Erlangen, 1896) reports 198 cases of pulmonary tuberculosis of children up to the age of 10 years, in which autopsies were made at the Pathologic Institute of Erlangen. In 194 of these cases the disease was of the caseous pneumonic *form.*

[46] Westenhöffer: Berl. klin. Wochft., vol. xli, 1904, No. 7, p. 152.

[47] Froebelius: Cited by Westenhöffer.

[48] Baginsky: Deut. med. Wochft., *vol.* xxx, 1904, No. 12, p. 44.

[49] Biedert: Cited by Westenhöffer.

[50] Lannelongue: *Cited by Westenhöffer.*

[51] Huebner: Lehrbuch der Kinderkrankheiten, 1903.

Again, if Behring's proposition be correct that the bovine tubercle bacillus is the chief and practically the only source of infection, the mortality from tuberculosis of children nourished with cow's milk should at least far exceed that of breast-fed infants; but this is not the case. In Berlin records have been kept of the method of feeding all children under one year who have died of tuberculosis, and the figures are cited by Fraenkel,[53] as follows:

In 1899 the total infantile death rate from all causes was 10,933; in 1900, 11,762; in 1901, 11,325; in 1902, 8,927. Of these there received mother's milk exclusively, 898, 895, 832, 733, respectively, of whom there died of tuberculosis in 1899, 11—1.1 per cent.; in 1900, 8—0.9 per cent.; in 1901, 4—0.5 per cent.; and in 1902, 5—0.7 per cent. Of children reared exclusively on cow's milk there died in 1899, 6,631; 1900, 7,305; 1901, 6,982; 1902, 5,246; and of these death was due to tuberculosis, respectively, in 79—1.2 per cent.; 70—0.9 per cent.; 63—0.9 per cent.; and 61—1.1 per cent. From these figures it will be seen that the maximum difference in any one year between the two series is represented by only 0.4 per cent., a fact which does not bear out Behring in his views.

In this connection additional facts are not wanting. Speck,[54] in order to determine the degree of danger of tuberculous infection in infancy from milk, made inquiry of the various sanatoria for tuberculous patients in Germany concerning the method of feeding of patients up to the third month of life. It was shown that of 4,467 phthisical patients of the sanatoria, that 3,455 had been breast fed, or 77 per cent., and 1,012 had received cow's milk, or 23 per cent. Of 259 cases reported by other physicians, 181, or 70 per cent., were breast fed. Jacob and Pannwitz[55] reported of 2,921 tuberculous patients that 1,877, or 67 per cent., were breast fed, and 969, or 33 per cent., were raised on cow's milk. Schroeder's report of 264 cases shows that 203 were breast fed, or 77 per cent., and 61, or 23 per cent., were fed with cow's milk, and Servae reports on 99 cases, of which 63 received women's milk, or 64 per cent., and 36 received cow's milk, or 36 per cent. These figures Speck has summed up, making a total of 8,010 cases of tuberculosis, of which 5,854, or 73 per cent., were breast-fed children, and 2,156, or 27 per cent., were raised on cow's milk. While these statistics represent conditions on the continent, the records of the Winyah Sanitarium at Asheville, N. C., show that 75 per cent. of tuberculous patients have positively stated that they had been breast fed. 15 per cent. could not make definite statements, and 10 per cent. were raised on cow's milk.

Another discrepancy between Behring's theories and facts Biedert[56] has remarked in the following: In the lower Pfalz district there are 182 head of cattle per 1,000 inhabitants, and according to meat inspection there are 7.5 per cent. of tuberculous cows. Here the mortality from tuberculosis is 35.9 per 10,000 inhabitants. In the upper Pfalz there are 314 head of cattle per 1,000 inhabitants and of tuberculous cows 17.3 per cent. Here the mortality from tuberculosis is 29.1 per 10,000.

Again, Tonzig[57] cites the statistics of the city abattoir of Padua, which show that bovine tuberculosis occurs with rarity. Yet this city furnishes the greatest mortality of all Italian cities from tuberculosis with a remarkable frequency of intestinal tuberculosis.

In a letter to the editor of the *Medical Record* Carter[58] says that the average mortality from tuberculosis in the city of Havana represents more than 21 per cent. of the total death rate, and yet raw cow's milk is never used in Havana.

In Sweden, where for generations nearly all mothers have nursed their children, we find a higher death rate among children from tuberculosis than in certain other countries where artificial feeding is frequently resorted to. Hirsch[59] cites the comparative statistics for four countries as follows: Switzerland, 1.86; Prussia, 2.94; Norway, 2.21; Sweden, 3.5.

According to Babes,[60] tuberculosis is very prevalent in Roumania, where the children receive no cow's milk, and according to Arthur Meyer,[61] in England, where milk is used raw much more than in Germany, the tuberculosis mortality is less than on the continent, although Ransome, Delepine, Boyce and others have shown that milk contained tubercle bacilli in large numbers of the samples which they examined. On the other hand, in Sardinia and in Sicily, where bovine tuberculosis, according to Dr. Vestea, is almost unknown, the tuberculosis of man causes a greater mortality than in England.

Of Greenland, Heymann[62] tells us that infants are almost exclusively breast fed, and yet tuberculosis is so prevalent that it is easier to name those who are free from it than to attempt to report the widespread presence of this disease.

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[52] Epstein: Cited by Neumann, Deut. med. Wochft., vol. xix, 1893, No. 13, p. 308.

[53] Fraenkel, B.: Deut. med. Wochft., vol. xxx, 1904, No. 6, p. 227.

[54] Speck, A.: *Zeit. f. Hyg.*, vol. xlviii, 1904, No. 1, p. 27.

[55] Jacob and Pannwitz: Entstehung u. Bekämpfung der Lungentuberculose, Leipzig, 1901, vol. i, p. 253.

[56] Biedert: Berl. klin. Wochft., vol. xxxviii, 1901, No. 47, p. 1177.

[57] Tonzig: Cited by Ott, Deut. Aertzte Ztg., No. 23, December, 1902.

[58] Carter: Med. Rec., vol. lxv, 1904, No. 8, p. 309.

[59] Hirsch: Cited by *Oppenheimer*, Münch. med. Wochft., vol. li, 1904, No. 5, p. 204.

[60] Babes: Rumän. Akademie der Wissenschaften, Feb. 6, 1904; Ref., Münch. med. Wochft., vol. li, 1904, No. 27, p. 1218.

[61] Meyer: Berl. klin. Wochft., vol. xli, 1904, No. 10, p. 257.

[62] Heymann, B.: Zeit. f. Hyg., vol. xlviii, 1904, No. 1, p. 45.

According to Cobb,[63] tuberculosis in all its forms is the greatest scourge in China. Nevertheless, the use of milk as a food by the Chinese is so rare that one may practically say they do not use it. Very few cattle are raised by the Chinese and these are mostly used for ploughing.

Finally, we are informed by Shiga[64] that bovine tuberculosis was unknown in Japan until thirty years ago, when foreign cattle were imported, and from Professor Asyama[65] of Tokio we learn that tuberculosis has been widely disseminated in Japan for centuries, in spite of the fact that until a few decades ago the feeding of nurslings has been only by the mother's milk or that of wet nurses, for ritual and religious reasons.

From such an array of facts, to which many more might be added, Behring's position is clearly shown to be untenable, and it does not appear that the milk of tuberculous cattle is of very great significance in the spread and perpetuation of tuberculosis in man. Nevertheless, it must not be forgotten that isolated instances have occurred from time to time in which it seemed most reasonable from the clinical evidence to attribute infection to bovine sources.[66]

While in such cases the evidence has pointed most strongly to an infected milk supply, yet it has been only circumstantial in character, and there has been no means of excluding absolutely a possible human source of infection. One or two cases may be quoted here which make this point clear.

In the celebrated case of Ollivier,[67] which he communicated to the Academy of Medicine of Paris in 1891, in the course of a few years, in a girl's school 13 of the pupils became ill of tuberculosis, 6 of whom died. Among them were several cases of primary intestinal tuberculosis. Investigation brought to light the fact that a cow which had been kept in the institution for some years suffered from tuberculosis of the udder, and that the milk from this cow had been drunk by the pupils. Here was a case in which the clinical evidence appeared strikingly convincing, and it has been cited over and over again as a classical example of infection through milk containing *Perlsucht* bacilli. The second communication of Ollivier in regard to this case seems to have escaped the notice of all those who have made use of it as a proof of the danger of milk infection. At the very next session of the academy, Ollivier was obliged to admit that he had been mistaken. He had since learned that the milk of the cow in question had not been drunk by the pupils, but by the teachers and domestics of the school, among whom not a single case of tuberculosis had developed.

In the oft-quoted case of Dr. Stang,[68] a 5-year-old boy showed for some time symptoms of an abdominal affection. Ascites appeared and enlarged lymphatic glands could be felt through the abdominal wall; after a few weeks the boy died. The autopsy showed tuberculosis of the lymph glands of the abdomen, of the serous membranes and of the lungs. There had been no history of tuberculosis in the family on either side for two generations, but it was found that the child had drunk for a year the warm milk directly from a cow which later died of tuberculosis. It is not stated that the cow had tuberculosis of the udder, and it should be remarked that in such a case possible sources of human infection can not be absolutely excluded.

The following instance reported by Demme[69] may serve as an illustration of the care that is essential in attributing cases of tuberculosis to certain sources of infection. In 4 cases of tuberculosis in infants, autopsy showed the disease to be confined to the intestine. It was afterward discovered that these children were all infected by the same nurse, who was found to have a tuberculous affection of the right antrum of Highmore communicating with the oral cavity through a fistula. It was the custom of the nurse to feed the children with a spoon and to test the temperature of the food by placing the spoon between her lips, and if too hot, to blow on it to cool it. Thus she infected the children with tubercle bacilli contained in her saliva. Now, if the unusual affection of the nurse had not been discovered, and, on the other hand, it could have been shown that these children had received milk from a tuberculous cow, four more cases of milk infection might have been added to the literature.

There still remain for consideration infections of the skin in the persons of those who handle tuberculous meat, and which are attributable to bovine tubercle bacilli. These cases all have this in common, that the tuberculous process remains localized and does not extend to the internal organs. In a number of such cases which were recently demonstrated before the Berlin Medical Society by Professor Lassar,[70] in not a single instance had there been an extension of the affection beyond the point of inoculation, although the local lesions had existed for a long time, in one case for over ten years. It must be conceded that if such infections were prone to lead to generalized tuberculosis, butchers should show a higher mortality from tuberculosis than those pursuing other occupations. But this is not so, and it has been shown for the city of Copenhagen by Heilberg[71] that with an average of 618 butchers altogether, but 25 have died of tuberculosis in ten years. In regard to accidental cutaneous infections with human tuberculous material, however, little need be said, for it is well known that large numbers of such cases are on record in which the local affection extended by way of the lymphatics and caused the death of the subject from generalized tuberculosis.

With all the circumstantial evidence available, the question of the susceptibility of mankind to bovine tuberculosis can not be satisfactorily settled. The problem can only be solved by experiments in human beings, and these are excluded. Such experiments, however, have been made, although they were undertaken with another motive.

Based on Rokitansky's theory of the existence of antagonism between tuberculosis and carcinoma, over half a dozen patients who suffered from inoperable malignant disease were inoculated with bovine tubercle bacilli in a last effort to save them from inevitable death. At that time the belief was current that the bovine *tubercle bacillus* and the *human* germ were identical, and, therefore, as cultures of the latter were not available, a cul-

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63. Cobb, J. O.: Zeit. f. Tuberculose u. Heilst., vol. vi, 1904, No. 1, p. 1.

64. Shiga: Zeit. f. Hyg., vol. xlvii, 1904, No. 2, p. 209.

65. *Schoenborn*: Beiträge zur Klinik der Tuberculose, vol. ii, 1904, No. 2, p. 103.

66. In the Amer. Jour. of the Med. Sciences, vol. cxxvi, 1902, p. 884, will be found an article by *Dr. George M. Kober*, in which 86 cases are tabulated in which infection was supposed to have come from bovine sources.

67. Koch, R.: Deut. med. Wchft., vol. xxviii, 1902, No. 48, p. 857; Transl. Jour. of Tuberculosis, vol. v, 1903, No. 1, p. 40.

68. Aerztliches Intelligenzbl., München, 1876, vol. xxiii, p. 34.

69. Demme: Cited by Grosser, Diss., Tübingen, 1900, p. 11.

70. Lassar: Berl. klin. Wochft., vol. xl, 1903, No. 31, p. 708.

71. Heilberg, P.: Zeit. f. Tuberculose u. Heilst., vol. v, 1904, No. 3, p. 235.

ture of the bacilli of pearl disease which had proved highly virulent for rabbits was used. After inoculation the patients survived, respectively, from several months to a year, and when subsequently they died of their malignant disease it was found that not in a single case had an infection resulted. Baumgarten,[72] as official prosector of the hospital in which the experiments took place, performed the autopsies. He found at the point of inoculation only small scars, the tissues of which contained no tubercle bacilli, and he assures us that a critical macroscopic and microscopic examination of the adjacent lymph glands and of the various internal organs failed to reveal tubercles or tubercle bacilli.

Any discussion of the relation of human and bovine tuberculosis is incomplete without at least a brief consideration of the subject from the standpoint of prophylaxis. The information which is available regarding the danger to man from bovine infection clearly indicates, as Professor Koch maintains, that such infections are extremely rare in comparison with the overwhelming preponderance of epidemiologic infections. Nevertheless, that progressive infection of man and more particularly of children can occur from bovine sources seems to have been shown by the experiments of the German Imperial Health Bureau. On the other hand, the cases of infection of human beings with *Perlsucht* bacilli, which Baumgarten has published, proved absolutely negative. The subjects of these experiments were adults, however, and it is not beyond the realms of possibility that the result might have been different had a number of infants been inoculated.

From the standpoint of prophylaxis, we are not so much concerned with the frequency of infection of man from bovine sources as with the question: Do such infections occur at all? So long as it can not be demonstrated beyond all doubt that they do not, preventive measures against bovine tuberculosis must remain imperative.

The object of all prophylaxis against tuberculosis is the eradication of the disease; on this point all are agreed. But, in order to accomplish this most certainly and most quickly, the greatest efforts should be made to protect against the greatest danger. On this account the lesser evil need not be ignored.

As Professor Koch pointed out, the danger to man from the tuberculosis of cattle can be overcome by boiling the milk and by sufficiently cooking the meat of tuberculous animals which may be used for food. This more simple and inexpensive prophylaxis against bovine tuberculosis, Koch recommended in order that the vast sums which must be required in the way of remuneration for tuberculous animals judicially destroyed might be diverted toward the establishment and maintenance of a more thorough and more effective prophylaxis against the chief source of human infection, the tuberculosis of man himself.

But were it proved that bovine tubercle bacilli could at the very most cause only localized non-progressive lesions in man, the use of food products of tuberculous animals would still be objectionable, for such lesions can lead to serious impairment of nutrition and possibly to death from tabes mesenterica.

The flesh or the milk of diseased animals is not fit for human consumption under any circumstances, and for this reason alone, if for no other, the careful inspection of meat and milk would still be indicated and the eradication of the tuberculosis of cattle would always be desirable on this account, as well as for purposes of economy.

# THE TREATMENT OF GONORRHEAL ARTHRITIS BY HYPEREMIA.

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All physicians who have seen gonorrheal arthritis know how unsatisfactorily the usual treatment—rest, massage, passive movements, salicylates, etc.—often proves in chronic cases, and how hard to overcome in those cases is the extreme painfulness and the stiffness of the diseased joint. It seems to me worth while, therefore, to call attention to a method of treatment which, so far as I have observed, in this country, has by no means found the notice and practice it deserves. I refer to congestive hyperemia by damming according to Bier, which, as his assistant, I saw him employ.

As is generally known, Bier recommended hyperemia by damming at first for tuberculous joint diseases; later he employed it also for other diseases, and in his book, *"Hyperœmie als Heilmittel,"* writes: "Yet much more marked is the effect of hyperemia by damming on that form of gonorrheal joint inflammation which is so extremely painful. In these cases the pain becomes easier in from one-half to one hour after the application of the rubber bandage."

During the last few months I have had occasion to employ, and with the best results, hyperemia by damming in several of those cases of gonorrheal arthritis which are marked by extreme pain and a tendency to stiffness.

Case 1.—Man, aged 34.

*History.*—Five months after an apparently slight gonorrheal infection he suddenly experienced severe pain in the right knee. The joint became severely swollen and was soon quite stiff. For about five weeks he was treated by his physician with salicylates, etc., and with tincture of iodin without any result. During this time the pain was so great that he was given narcotics in order to make him sleep. The circumference of the joint was 8.5 cm. larger than that of the other knee.

*Treatment and Result.*—While the joint was in this condition the rubber bandage was applied. The very first night the patient wore the bandage he slept without any narcotic and in a few days he was able with the help of a stick to take a few steps and with almost no pain. Soon the pain entirely ceased and the patient walked quite well, but the stiffness of the joint improved comparatively slowly.

Case 2.—A woman, aged 27.

*History.*—For nine weeks she had suffered with an inflamed ankle joint with much swelling and very severe pain. For weeks she was treated for rheumatism and without result.

*Treatment and Result.*—In this case also after application of the rubber bandage in a few days there was marked improvement and she began to walk quite well. The recovery was somewhat retarded, due to an acute cold and to catarrh of the bladder, which the patient refused to have properly treated; nevertheless, after a short time, she was able to put on her boots and felt so well she wanted to walk home.

Case 3.—Another case was that of a woman, aged 29, who, on previous occasions had made herself remembered in the hospital because of her timidity and lack of self-control.

*History.*—This patient, eight weeks before the beginning of the treatment, was said to be severely ill with measles and grip. After two days' illness, severe pain started in the right knee and continued until the beginning of the treatment with the rubber bandage. In this case gonococci could not, as in the two foregoing cases, be found, but the symptoms clearly pointed to a gonorrheal inflammation in the right knee. The joint was severely swollen, extremely painful, and any movement absolutely impossible. Only with the greatest pain could the patient turn herself in bed.

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[72] Von Baumgarten: Berl. klin Wochft., vol. xxxviii, 1901, No. 35, p. 894.

*Trreatment and Result.*—Soon after applying the bandage the pain grew less, and continued to grow less until at the end of ten days she was able to take a few steps without pain. Though the extraordinary timidity of this nervous woman kept her from exercising and therefore prevented a more speedy return of the joint movement, yet the patient was soon able to walk around all day and the pain completely disappeared.

In describing the technic of damming I will follow the directions given by Bier himself in his book entitled *"Hyperæmie als Heilmittel,"* and I will restrict myself to the technic as it is used for gonorrheal arthritis, omitting the employment of the method for other diseases.

For the damming it is best to use a thin pliant rubber bandage, the same as is used to make a limb bloodless for an operation. If such a bandage is applied moderately tightly in several layers—not necessarily directly over each other—around a limb, it will soon be noticed that the subcutaneous veins swell, that the skin becomes of a red hue which is slightly tinged with blue, and that the limb becomes bigger and edematous; it feels warm to the touch and gives the subjective sensation of increased warmth in the limb. If there is pain in the joint it ceases, as a rule, very soon, and the stiffness of the joints becomes gradually less. The rubber bandage in this case ought not of itself to cause any uncomfortable feeling; the patient can even forget its presence. This degree of hyperemia, the so-called *"heisse Stauung"* (hot damming) is the right one and the only one that can be used as a remedy.

It is sometimes very difficult to obtain this degree of hyperemia, and it requires careful attention and some practice to apply the bandage in such a way that the arteries are not compressed, while at the same time the veins are so far compressed as to partly check the reflux of the blood, so that the flow of the blood is retarded while the circulation is not entirely suspended.

In applying this treatment to a knee or an elbow joint sometimes it seems easier to get the right degree of hyperemia by bandaging the distal part of the joint with a flannel bandage. Other aids, recommended by Bier, to obtain the "hot damming" are: Previous heavy coating of the diseased joint with *tincture of iodin*, which causes a slight inflammation, and then, in the inflamed area, the bandage causes a very good hyperemia; or one can make the limb for a few minutes bloodless, according to Esmarch, then wait for the reactive hyperemia and afterward dam with the bandage the copious amount of blood from the reactive hyperemia.

To prevent any unpleasant results, such as atrophy of the muscles or irritation of the skin at the place where the bandage is applied, a few layers of gauze can be interposed between the skin and the rubber. It is also expedient to change the place of the bandage, for instance, to put it at night directly above the diseased joint and during the day farther away from the joint.

If the bandage is too tight, the skin of the limb soon looks grayish blue, and there appear whitish and particularly vermilion-colored spots, which grow larger and larger so long as the too tightly drawn bandage remains. The joint is cold to the touch—so-called *"kalte Stauung"* (cold damming)—while there is, as a rule, even now a subjective feeling of warmth; also there appear under these conditions paresthesia and pain. In rare cases, Bier has also seen what he calls white damming, in which there seems to be especially a damming of the lymphatic vessels.

All these latter phenomena, blueness and coldness of the limb, white or vermilion-colored spots, paresthesia and pain, show that the bandage is too tight and must be loosened.

To the application of the hyperemia as a remedy we become entitled and impelled through observation of nature.

In every function—in growth, in regeneration, in all remedial efforts of our system—nature uses hyperemia either active (arterial), or passive (venous). Our efforts, therefore, must be to find out the ways nature takes and to help her by limiting the hyperemia if it gets stronger than necessary—antiphlogistic régime in acute inflammation—or by increasing the hyperemia if nature does not seem to react with enough force against the disease, as seems to be the case in chronic arthritis and in some cases of gonorrheal arthritis.

If we ask now what are the effects of hyperemia, we find that the first and most marked effect is the lessening of pain, which every physician has noticed who has applied hyperemia by damming or by hot air, for the effect of hot air is hyperemia. If one properly employs the hyperemia by damming, this anodyne effect is so marked that Bier emphatically calls attention to the fact that the bandage is not properly applied if, after its application, the pain is increased instead of being lessened.

But it is not the anodyne effect alone that makes the hyperemia a remedy. Hyperemia by damming certainly has a bactericide effect, whether this depends on increased leucocytosis, on a larger quantity of serum with its alexins and products of the change of matter in the bacteria, or on increase of the carbonic acid and thereby of the alkalinity of the blood.

Finally, hyperemia by damming has a dissolving effect. In those stiff joints of gonorrheal arthritis in question, as well as in joints with chronic arthritis, the adhesions consisting of connective tissue become infiltrated with serum, swell, and are dissolved and may be removed with the serum by means of massage, which should be employed after the bandage is taken off.

Only the above-described, so-called *"heisse Stauung"* (hot damming) has these effects, and I wish to emphasize the fact that special attention must be given to obtain the right degree of hyperemia and to maintain the same during the time the bandage is applied. At the first application of the bandage the patient must be strictly admonished to tell at once if he feels more pain, if the joint becomes blue or pale, or if it feels cold or numb. In the beginning of the treatment of these gonorrheal joints it seems best to let the bandage remain only a few hours; but soon the time must be lengthened until in a few days the bandage should remain for ten hours during the day and ten hours at night. After the removal of the bandage it is well to massage slightly and to move the joint, and the patient must as soon as possible leave his bed.

The results of this plan of treatment of those painful cases of gonorrheal arthritis which tend to stiffness in most cases, so far surpass all other methods that I most urgently recommend the hyperemia by damming according to Bier.

# SMOKELESS POWDERS.

## THE NATURE AND EFFECTS OF THE DELETERIOUS GASES GIVEN OFF IN THEIR EXPLOSION.*

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Ever since the introduction of the so-called smokeless powders, injurious effects have been observed from their use. In small quantities, the gases resulting from the explosion of powders of this class, cause varying degrees of disturbance in the cardiac and vasomotor apparatus. "Dynamite headache" has become a common phrase among those who work in the manufacture of the powders; among miners, who use them for blasting purposes, and among sportsmen, soldiers and rifle shots, who use them in firearms. In larger quantities, these gases have produced profound intoxications, and have caused numerous fatalities. Haldane[1] says: "In the gold mines in India and in the Transvaal, accidents involving the loss of as many as twenty men at a time have sometimes occurred in this way from dynamite catching fire underground, and serious injury to health may easily be caused by the fumes of imperfectly detonated high explosives where the ventilation is bad." Key[2] says: "Many instances are recorded of fatalities due to the inhalation of these fumes." An accident occurred from the fumes of exploding nitroglycerin, during the construction of the Severn tunnel, in which two men lost their lives. These cases are fully reported by Ford,[3] who quotes other cases by Dupré. A striking instance of the lethal effects of the fumes of modern high explosives was seen in the Philippine Islands, when fourteen men perished after a blast in the quarries of Mariveles. They sought refuge from the explosion in a protected gallery in the pit-like quarry. The fumes of the explosion settled into the quarry, and before aid could be given the men they were all dead. Numerous isolated instances have been reported.

It seemed profitable to determine, if possible, the particular gas or gases causing these symptoms and to study their effects. For this purpose the experiments which are here detailed were undertaken. Some very positive and interesting results were obtained. The literature bearing directly on the subject is very sparse. With the exception of some simple experiments with smokeless powders, by Torel, the field is a new one. The results run a close parallel to some of the results obtained by Haldane in his masterly experimental studies of the effects of poisoning by carbonic oxid.

The following is a brief extract of a paper by Torel,[4] a medical officer of the French navy. He refers to a number of cases occurring on the *Massena*: "Six shots were fired in rapid succession from a 274 mm. gun in a closed turret. There was a gentle breeze blowing toward the muzzle of the gun in such a fashion that when the breach block was opened after each shot a large portion of the gases of the explosion was blown into the turret. A number of the men suffered slightly from the effect of the gases, while one was very severely affected. There was a complete loss of consciousness. The face was pale and covered with a cold sweat; the pupils were dilated. There were convulsive movements of the body and limbs; the respiration was labored and jerky; the pulse small and irregular, and the beats of the heart feeble and tumultuous. After he recovered consciousness, he complained of severe headache, of lassitude and of epigastric pain. He stated that when he lost consciousness he had severe vertigo and anginose pain in the precordium." Torel believes that the embarrassment of speech, the delirum and the convulsions observed in this case, point to a central intoxication by nitrous vapors rather than to poisoning by CO, in which the action is slower and more prolonged. To test the toxicity of the vapors he made two experiments on rats. The first rat was placed under a bell jar, of a capacity of 160 liters, and a mass of powder weighing 4 grams ignited and burned under it. The rat died in five seconds, and was in a state of rigidity with dilated pupils. He allowed a portion of the gas to escape from the bell and placed another rat under it. The rat died in fifteen seconds, after strong convulsions.

Not strictly related to this inquiry, but casting a great deal of light on some of the effects, is the so-called "cordite eating" in the British army. The first mention I can find of this practice is by Purdy:[5] "There were a few cases where men were admitted with a temperature of 103 degrees or 104 degrees one day, and after a night in hospital the thermometer registered normal. It was found that one or two of the 'weary Willies' and 'tired Tims' had resorted to eating cordite as a means of creating a temperature, and so bluffing the doctors. This means of raising the temperature was discovered by the men noticing the effects of cordite fumes when lighting a pipe with a stick extracted from a cartridge."

A fuller report on this subject was made by Jennings.[6] The following is a brief abstract of his paper; he records the cases of several men who were in the habit of eating cordite for the sake of the intoxication it produced: "Cordite, when taken in the strand form, rapidly produces a violent splitting headache in the temporal and occipital regions, the headache continuing all day." "As an experiment, I tried one-fourth of a strand from a Lee-Metford cartridge, which I kept in my mouth and sucked for two minutes. Its diminution in size was scarcely appreciable, and yet I experienced the most racking, splitting headache that I ever felt in my life, together with hammering and ringing noises in my ears; the headache lasted quite thirty-six hours." "Its physiologic action is similar to but slower than amyl nitrite, viz., throbbing headache, flushing of the face, visible carotid pulsation, giddiness and disordered action of the heart." When taken with beer or tea it appears to produce heavy sleep, followed by a stupor lasting approximately from five to twelve hours. He also notes the habit of the men lighting their pipes with sticks of cordite and says that when so used it gives the smoke a not unpleasant sweet taste and a slight passing headache or giddiness. Cordite alone does not seem to make men crazy, but taken with beer or spirits it brutalizes the mildest man and makes a temporary maniac of him. He also reports from personal observation that the habit seems apparently to age a man rapidly and to make him exceedingly negligent of his personal appearance.

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* Special report to the Surgeon General, U. S. Army, and published by his authority.

[1] Quoted by Oliver: Dangerous Trades. pp. 614 *et seq.*

[2] A. Cooper Key: In Oliver, Dangerous Trades.

[3] Ford: Chief Inspector of Explosives, British Government Report, No. 26, Oct. 30, 1879.

[4] Torel: Accidents Produced by the Deleterious Gases of Smokeless Powder, Archives de Médecine Navale, 1903, p. 373.

[5] Purdy: New Zealand Medical Journal, March 31, 1902.

[6] J. W. Jennings, Major R. A. M. C., D. S. O., Journal Royal Army Medical Corps, October, 1903.

My experiments were divided into two groups. One group, to determine the nature of the gases given off in the explosion of smokeless powders, and the other group to determine the effect of these gases on man. The first group was made by firing blank cartridges into a sealed box and then aspirating the gases of the explosions through various test reagents. The second group of experiments was made in a closed and sealed room of about 1,200 cubic feet capacity. The subjects of the experiments were myself, Sergeant, First class, Clare and various privates of the hospital corps detachment on duty at this station. After entering the experiment building, the door was sealed and a varying amount of powder was exploded in a United States magazine rifle. The average exposure to the action of the fumes was one hour. During this time observations on the heart, vaso-motor system, blood pressure, hemoglobin and temperature were made.

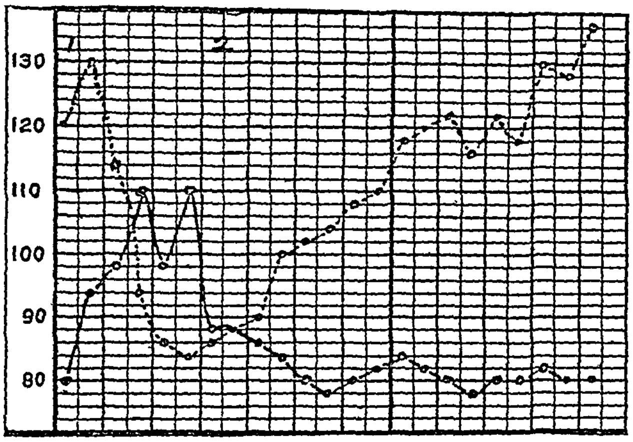


Chart 1.—Continuous line shows pulse; dotted line shows blood pressure. Amount of powder exploded equals 10 grams. 1. Exposed to the fumes. 2. Out of the fumes. Observations ten minutes apart.

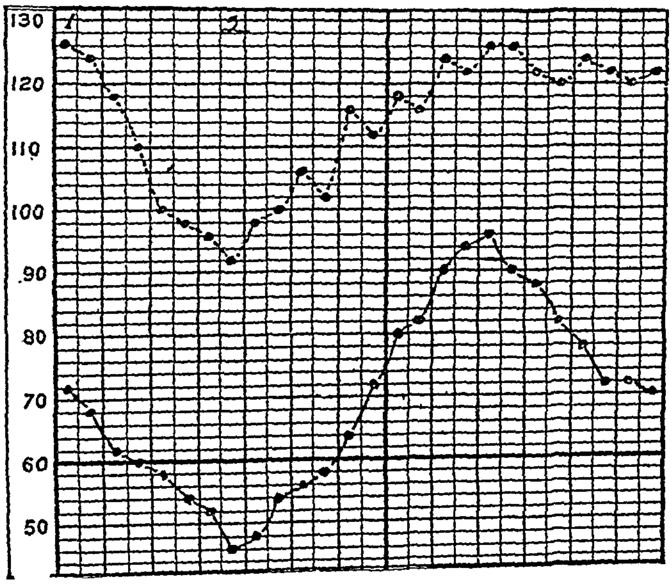


Chart 2.—Showing delayed action on pulse and blood pressure. Observation interval ten minutes. 1. Entered fumes. 2. Out of the fumes.

It required considerable resolution to keep these experiments going, and they were carried over a long time, on account of the necessary intermissions that had to be made between them. This was due chiefly to the headache that invariably followed the experiments, frequently extremely severe and lasting for from four to forty-eight hours. Numerous sphygmographic traces were made. A great variety of powders was tried, but as no appreciable differences could be found in their action, with the means at hand, the experiments were completed with the United States Army small-arms powder. This powder contains gun cotton, nitro-cellulose, nitroglycerin, a metallic nitrate accelerator and an unknown deterrent. The action and function of these deterrent bodies will be considered later. Positive results were obtained with as small an amount of powder, exploded, as 8 grams.

The first and most notable effect of the powder fumes was on the heart and circulation. In small amounts (8 to 10 grams of powder, exploded) there ensued in from five to ten minutes palpitation of the heart with rise in the pulse rate. (Chart 1.) In only one instance, with the fumes from 7 grams of powder, there was a slow but steady fall in the pulse rate to 46, with a great sense of distress in the chest, marked cyanosis and a tendency to faintness. In this instance the rise, as seen in Chart 1, No. 1, followed one hour after leaving the fume room, and then was the same as usually observed. (Chart 2.)

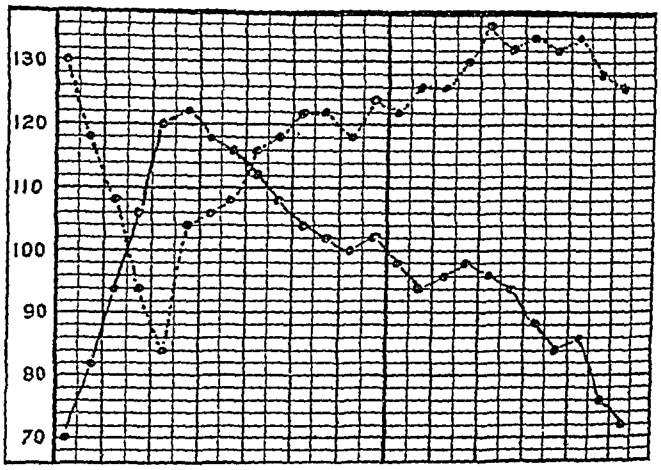


Chart 3.—Showing the effect of 20 grams of powder. Observation interval five minutes.

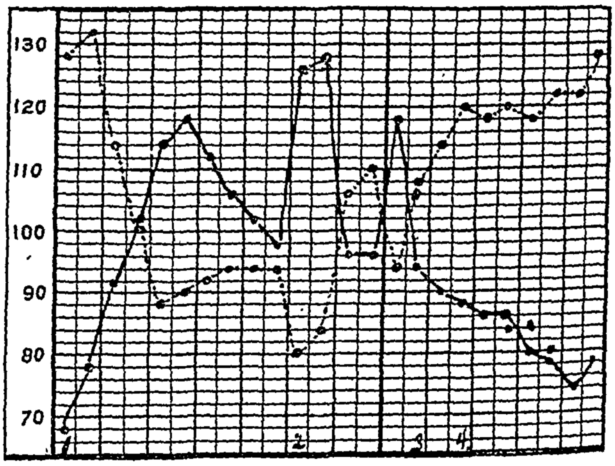
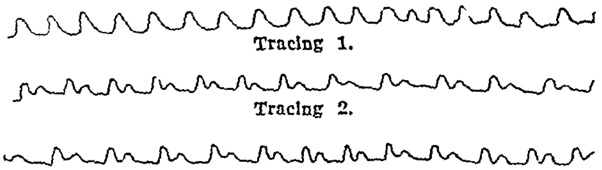


Chart 4.—Showing the full effect of smokeless powder fumes. Amount of powder exploded 37 grams. 1. Entered fumes. 2. Walked thirty steps. 3. Same. 4. Left fumes. Interval between observations five minutes.

In larger quantities of the fumes, from 20 grams of powder, the effect on the heart was more pronounced. In a few instances an initial but very brief fall was noted. (Chart 3.)

Following this the pulse rose rapidly to 110 and 115. There was a most distressing, tumultuous feeling in the chest. The face was flushed, the pupils dilated. In from fifteen to twenty minutes cyanosis appeared. Chart 4 shows the full effect of smokeless powder fumes.

In this experiment, 37 grams of powder were exploded, and it was found that this was about the limit of safety, beyond which I could not go, without unjustifiably endangering everyone concerned in the experiment. The initial pulse was 70. It rose rapidly to 118 and then began to fall. When slight exercise was tried, walking thirty steps at a slow walk, it rose to 128, became arrhythmic and markedly dicrotic. The loss of vasomotor tone was very evident in the fall of blood pressure with the increase in the rate of pulsation. The dicrotism was apparent to the finger, and was marked in the sphygmographic traces, which are here shown. (Tracings 1, 2, 3.) After exposure to the fumes for thirty minutes, the man staggered and swayed in walking. The power to remain stationary, with the eyes closed, was almost abolished. The reflexes were not increased. In addition to great distress in the chest and angor cardii, he complained of a severe feeling of oppression in the head, smarting of the eyes and dryness of the throat. There was marked loss of hearing, diminished acuity of vision and apparent mental confusion. The sense of oppression in the head rapidly developed into a violent general headache, more marked in the occipital region, which lasted thirty-six hours. This particular experiment has been detailed at length because it is the typical expression I found, over and over again, of the full effect of the powder fumes.


Tracing 1.

Tracing 2.

Tracing 3.

Tracings 1, 2 and 3 correspond to Chart 4 and illustrate the loss of vasomotor control and dicrotism.

The influence on the vasomotor system was equally pronounced. An initial flushing, particularly of the face, was always seen, and, with this flush, there was a subjective sense of heat. The flush was followed by cyanosis, apparent in the lips, finger nails and malar prominences. The color was a curious one, and suggested turgidity rather than lividity. The blood pressure fell rapidly with the rise in the pulse. The average fall was 50 points, from 130 to 80 mm. of mercury.

Respiration showed less change than the other functions. There was always some hyperpnea, and not so much a sensation of air hunger as a feeling of respiratory insufficiency; a subjective sense of unsatisfied breathing. Where there was full exposure to large amounts of the fumes, nose bleed was frequently observed.

Under the same circumstances locomotion and coordination were markedly affected. Swaying and staggering on walking was commonly observed. Walking along a line marked out on the floor was difficult. Even in small doses, when the feet were placed together and the eyes were closed, there was a curious sense of instability and a subjective feeling as though one were about to fall. In large doses the swaying was very apparent, while in full doses the position could not be maintained at all. No alteration in the reflexes was observed. Failure of co-ordination was also shown in increased difficulty in performing manipulations involving careful movement. Thus it became very difficult to make the sphygmographic traces, and there was more or less tendency to drop small articles like pencils, thermometers and tracing papers.

I could not satisfy myself that there was any influence whatever on the body temperature. The sensation of heat has already been mentioned, but the thermometer failed to show any actual rise. The observation by Purdy,[5] already quoted, of the temporary rise observed in men who ate cordite for the purpose of malingering, led me to expect some temperature variations. However, none were observed, and, therefore, there must be some difference in the action of cordite powder fumes and the internal effect of cordite when eaten, in this respect, although most of the other phenomena are somewhat similar.

Although I could find no effect on the temperature of the body, it was noticed that the temperature of the outside air had a marked influence on the effect of the powder fumes. Charts 5 and 6 show this very plainly. Generally speaking, it was found that decrease in the temperature increased the effect of the powder fumes. Both of these charts show experiments on the same man made under exactly similar conditions, excepting the room temperature. Chart 5 shows the effect of the fumes of 20 grams of powder on the man at a room temperature of 74° F. It will be observed that the reaction is very moderate. Chart 6 shows the experiment repeated with the same man and the same quantity of powder at a room temperature of 47 F. The effect is very much more marked.

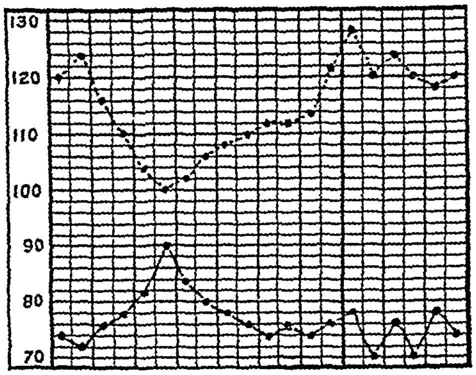


Chart 5.—Showing influence of heat and cold. Amount of powder exploded 20 grams. Temperature of room 74 F. The reaction is very moderate.

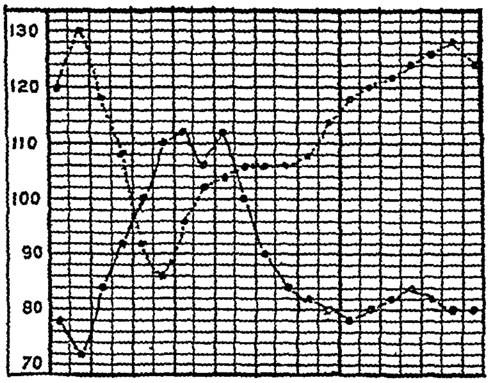


Chart 6.—Showing influence of heat and cold. The conditions are the same as in the preceding chart excepting the temperature of the room, 47 F. The reaction is more decided.

I do not pretend to interp[illegible] this phenomenon, but a very similar observation [illegible] Haldane[7] in

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7. Jc[illegible] [illegible] 895, vol. xviii, p. 430.

his studies of CO poisoning: "Another point which may probably be of importance is to prevent fall of temperature. My attention was first called to this point by observations on mice and subsequently by a fact communicated to me by one of the rescue party after the terrible colliery explosion in South Wales in 1894. It was noticed that some of the men found still alive, but suffering from the effects of after-damp, got worse and gradually sank when brought to the fresh air at the bottom of the down-cast pit. At this point the air would be cooler and dryer than in the workings. The fall is apparently accelerated by dilatation of the blood vessels of the skin."

It is possible that this explanation may apply to these observations as well; that the dilation of the vessels produced by the powder fumes is augmented by the peripheral dilation caused by the cold. I also made an effort to determine the effect of moisture by saturating the room with steam. The effect of the fumes in moist air seemed to be less than in dry air, but of this observation I am not by any means sure.

Vision became less acute under the influence of the powder fumes, the average diminution being from 5/20 to 7/20. The visual fields were slightly contracted uniformly. I could discover no scotomata. Hearing was more decidedly obtunded. When the full effect of the fumes was obtained there seemed to be a loss of nearly one half in hearing. A degree of mental confusion was also observed, chiefly expressed in dullness and failure of concentration. "Dynamite headache" always followed the experiments. It varied in intensity, but was usually severe. Frequently it was almost intolerable, on account of the severe, crashing, splitting pains. Occasionally it was milder, with a general sense of constriction and a localized pain in the occipital region. It lasted from four to forty-eight hours. It is undoubtedly congestive in character and due to the filling up of the cerebral vessels from vasomotor paralysis. There was nearly always a feeling of malaise and depression after the experiments.

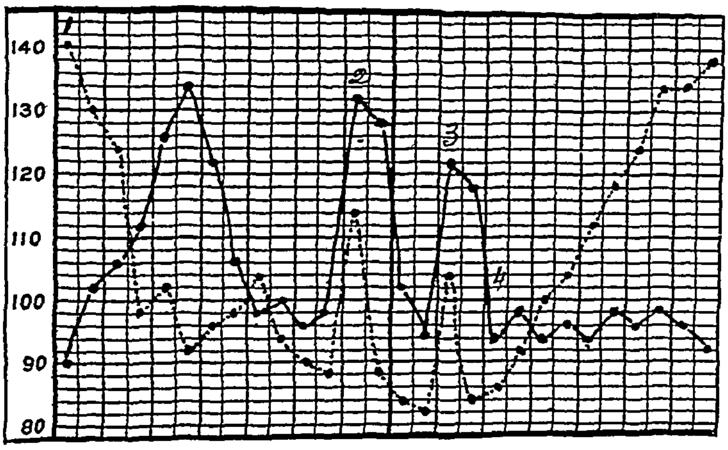

Chart 7.—Showing effect of alcohol and powder fumes. Amount of powder exploded 25 grams. 1. Entered fumes. 2. Exercise. 3. Exercise. 4. Left fumes. Interval between observations five minutes.

Free nitrites could be demonstrated in the urine within one hour after exposure to the fumes. No other changes were noted.

I was able to make one observation of the conjoined action of alcohol and powder fumes. One day one of the men presented himself slightly under the influence of liquor. The results of the experiment are interesting. The amount of powder exploded was 25 grams. The effect on the pulse was very pronounced. (Chart 7.) The stimulating effect of the alcohol, however, lessened the loss of vasomotor tone. The points marked 2 and 3 on the chart show the effect of exercise, and it will be noted that with the rise of the pulse rate the blood pressure also rose, in contrast to the effect shown in Chart 4. No tendency to dicrotism was observed.

Similar symptoms to these here recorded in the present experiments, have been observed in workmen engaged in the manufacture of smokeless powders. They are produced not only from the fumes arising from the powders, but also by handling the finished or unfinished product. Key[2] states that "nitroglycerin headache" is caused "either by inhalation of nitroglycerin vapor or by absorption through the skin, so that it results from handling the manufactured compound as well as from being present in a building in which the hot explosive is deposited. No one can enter a cordite drying room or 'stove' without experiencing a peculiar sensation at the heart and at the back of the head, which, in the absence of fresh air, soon develops into a headache which reduces to insignificance all the other ills of life." This effect is so well known that the occupation commands higher wages, not because of its perilous nature, but rather on account of the inconvenience from this source to which the men are subjected.

In nearly all the men used in the experiments a degree of tolerance was gradually established to the powder fumes. This is also a common observation among those engaged in powder-making. On this point Key[2] says: "Some suffer more than others, and on most people the fumes appear to lose their effect after a few days. With certain individuals, on the other hand, it is a matter of weeks before they become inured, and during that period they are never free from sickness and headache; moreover, a very few days' absence from contact with the explosive causes a return of the original susceptibility."

Among the men used in these experiments one was found who was practically unaffected by exposure to the powder fumes. The only effect observed was a fall of about ten beats in the pulse rate after exposure to dense fumes. The blood pressure was practically unchanged. This man had previously served in the infantry, and stated that he had inhaled powder fumes a number of times, during constant heavy firing, but he had never experienced any after-effects, although the other men about him had noticed the "powder headache." He was given nitrite of amyl by inhalation, and showed a very faint response to it. He gave practically no response to hypodermic injections of nitroglycerin gr. 1/100. This man represents an infrequent group, who are strangely resistant to the effects of the nitrites. I saw such another case in the clinic of the late Professor DaCosta. This was a man who had been given nitroglycerin to take by the mouth, with instruction to increase the dose to the point of tolerance. He returned, saying that he had taken large doses of the drug, and that he could see no effect of any kind. The drug was then pushed until he was taking, several times daily, the tremendous dose of 650 drops of the *spiritus glonoini*. I saw him take a dose of this size, in the clinic, and it had only a transient effect on his pulse.

Now the question arises, What gas or gases evolved from smokeless powders cause these effects? Smokeless powders are, practically all, composed of varying proportions of nitroglycerin, gun cotton and nitrocellulose, to which are added small proportions of metallic nitrates or organic bodies like urea or vaselin to act as accelerators and deterrents.

The explosion of nitroglycerin is usually represented as follows: $2(C_3H_5O_3\ (NO_2)_3)$ exploded $= 6CO_2 + 5H_2O + 3N_2 + O$.

The disruption of trinitrocellulose is shown in this reaction: $2(C_6H_7O_5(NO_2)_3)$ exploded $= 7H_2O + 9CO + 3CO_2 + 3N_2$.

Gun cotton is simply a highly nitrated nitrocellulose, containing more than 12.9 per cent. of nitrogen. Its explosion formula is considered to be the same as nitrocellulose.

The varying proportion of these ingredients in the principal smokeless powders is shown in the following table, which is taken from artillery notes No. 16 (12).

TABULATED CLASSIFICATION OF POWDERS.

PURE COLLOIDS.

ACETONE.

| | |
|---|---|
| Maxim Schupphauss No. 1. | |
| G. C. | 80. |
| N. C. | 19.5 |
| Urea | 0.5 |
| Powder B. (Vieille). | |
| G. C. | 68.21 |
| N. C. | 29.79 |
| Paraffin | 2. |
| Rifleite. | |
| G. C. | 74.16 |
| N. C. | 22.48 |
| Volatiles | .84 |
| $C_6H_4(NH_4)$ | 2.52 |
| Swiss Normal Powder. | |
| G. C. | 96.21 |
| N. C. | 1.80 |
| Resin | 1.99 |

ETHER-ALCOHOL.

Pyrocollodion (Mendeleef's Powder).
$C_{30}H_{38}O_{25}(NO_2)_{12}$.
Powder for U. S., Army.
Nitrocellulose containing not less than 12.65 per cent. ± .05 per cent. of N.
Powder for U. S. Navy.
Nitrocellulose containing from 12.4 to 12.8 per cent. of nitrogen.

ACCELERATED COLLOIDS.

METALLIC NITRATE ACCELERATORS.

| | |
|---|---|
| Plastomenti. | |
| N. C. | 67.18 |
| (N= 12.33.) | |
| $Ba(NO_3)_2$ | 9.76 |
| Toluene-di-nitrate | 22.06 |
| Powder BN. | |
| G. C. | 38.67 |
| N. C. | 33.23 |
| $Ba(NO_3)_2$ | 18.74 |
| $KNO_3$ | 4.54 |
| $Na_2CO_3$ | 3.65 |
| Volatile | 1.29 |
| Schultze. | |
| G. C. | 32.65 |
| N. C. | 27.71 |
| Cellulose | 1.63 |
| $Ba(NO_3)_2$ | 27.62 |
| $KNO_3$ | 2.47 |
| $NaNO_3$ | 2.24 |
| Paraffin | 4.2 |
| Volatile | 1.48 |
| Troisdorf. | |
| G. C. | |
| N. C. | |
| $—NO_3$ | |
| U. S. Naval (small arms). | |
| N. C. | 80. |
| $Ba(NO_3)_2$ | 15. |
| $KNO_3$ | 4. |
| $Ca(NO_3)_2$ | 1. |
| U. S. Army (small arms). | |
| G. C. | |
| N. G. | |
| N. C. | |
| $—NO_3$ | |
| Deterrent | |
| Indurite. | |
| G. C. | 40. |
| Nitrobenzin | 60. |

NITROGLYCERIN ACCELERATORS.

| | |
|---|---|
| Ballistite. | |
| G. C. | 50. |
| N. G. | 49. |
| Diphenylamin | 1. |
| Cordite. | |
| G. C. | 37. |
| N. G. | 58. |
| Vaselin | 5. |
| Leonard. | |
| G. C. | 24. |
| N. G. | 70. |
| Lycopodium | 4. |
| Urea | 2. |
| Maxim-Schupphaus No. 2. | |
| G. C. | 80. |
| N. C. | 10. |
| N. G. | 9. |
| Urea | 1. |
| Peyton (California). | |
| G. C. | 40. |
| N. G. | 38. |
| ? ? ? | |
| W. A. (Aspinwall-Whistler). | |
| G. C. | |
| N. G. | |
| $—NO_3$ | |
| Wetteren. | |
| G. C. | |
| N. G. | |

According to the formulæ given, nitroglycerin gives off no fumes that could be noxious or that could produce the symptoms that have been detailed. Gun cotton, however, and nitrocellulose give off large quantities of CO. The former yields on detonation amounts of carbonic oxid equivalent to from 28 to 45 per cent., depending on the pressure under which it is exploded. Reference will be made to the effects of carbonic oxid, and it will be seen that many of the symptoms produced are undoubtedly due to this gas. But there must be some other factor at work to produce the marked vasomotor and cardiac phenomena. This agent is nitric peroxid, $NO_2$. The formulæ given presuppose the complete and perfect detonation of the powder. Now detonation does not take place in military, sporting or blasting explosives. Instead, the action is a combustion, more or less rapid, according to the special use for which the powder is intended. The checking of the rate of explosion, by which it becomes more or less rapid combustion, is effected by means of deterrents. These deterrent bodies, or rather their effects, are of the greatest interest in this study. For this purpose most varied substances have been employed as urea, paraffin, resin, toluene, vaselin, lycopodium and the metallic nitrates. Many of them are unknown, and constitute the "secret" in most of the special powders. Now, under the influence of these "holders back," when smokeless powders burn instead of detonating, in addition to and replacing some of the products as given in the theoretical formulæ, the oxids of N appear. And they are developed in proportion to the slowness of the combustion. Hence slow-burning blasting powders which depend rather on the quantities of gas produced, than on the initial violence of the explosive blow for their disruptive effect, will produce large quantities of the oxids of nitrogen. It has long been known that when any of these powders burn quietly in the open air, still greater proportions of these compounds are formed. On this point Key[2] says the following: "If, however, nitroglycerin be decomposed by simple combustion, not detonation, the nitrogen and oxygen in the $NO_2$ molecules do not appear to be dissevered, the result being that not only are highly poisonous nitrous fumes given off, but the proportion of available oxygen is also so much diminished that a considerable quantity of CO is formed. Many instances are recorded of fatalities due to the inhalation of these nitrous fumes. In the cases where death has resulted from breathing nitrous fumes only, the end has generally been deferred for some time, amounting in one instance to no less than forty hours after the inhalation." Haldane[1] makes the following observation on burning explosives: "The most serious accidents in mines from gases from explosives have been due to the accidental burning of high explosives, such as dynamite or gun cotton. When substances of this class burn quietly instead of detonating, nearly the whole of the nitrogen is given off as nitric oxid (NO), instead of as free nitrogen. The nitric oxid at once combines with the oxygen of the air to form nitric peroxid, which is a very dangerous gas. Even when a charge is detonated for blasting purposes, it may happen, particularly with badly or roughly handled explosives, that part burns quietly and forms nitric peroxid. The latter is an irritant gas, but when sufficiently diluted may be breathed for some time without the person exposed to it being aware of the danger."*

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* Since this paper was written I have received the "Report of the Surgeon General of the Navy for the Year 1904." It contains (page 230) a report by J. F. Urie, surgeon U. S. Navy, on the powder explosion and fire on the U. S. S. *Missouri*, April 13, 1904. It will be remembered that in this disaster out of 36 people directly exposed to the flame of the burning powder, 32 perished. One charge of 360 pounds of smokeless powder was ignited in a turret and two charges of the same weight each in the handling room. The following remarks of Surgeon Urie are particularly germane to this paper: "The gases generated by the combustion of 720 pounds of smokeless powder in the handling room permeated the different parts of the ship in its vicinity and was a source of danger to those fighting the fire and rescuing the victims. The composition of these gases has not been fully determined. A number of officers and men were variously affected by inhalation of the gases. An exhilaration was experienced at first, followed in a few cases by a partial loss of consciousness. This was probably the effect of the absorption of the compounds of nitrogen—nitrites and nitrous acid. Other effects of the inhalation of the products of combustion were those caused by the irritative action of gases on the lining of the respiratory tract. Two cases of pulmonary edema resulted, 1 proving fatal, and 8 others were severely affected. A large number of the officers and men were affected to the extent of experiencing a soreness of the trachea and bronchi and a slight distress in breathing."

It is apparent, then, that the gases producing the ill effects described are either carbonic oxid or nitric peroxid, or a combination of the two. An interesting study might be made in separating these two gases from smokeless-powder fumes and studying their effects separately. There is only one explosive that might facilitate this. Sir F. Abel states that "tonite" produces "little or no CO" in its combustion. Unfortunately, I could procure none of this particular explosive for study.

The symptoms of CO poisoning have been thoroughly studied by Haldane.[7] He made experiments on himself with carefully measured quantities of carbon monoxid gas. I have here extracted the salient facts of three of his experiments. For further data I must refer the reader to his splendid paper in the original.

Experiment 2.—Proportion of CO = 0.39 per cent. was inspired for 11½ minutes.

After 22 minutes: There was slight palpitation, pulse 102.

After 26 minutes: Hyperpnea, palpitation, pulse 120.

After 30½ minutes: Became giddy, much palpitation, out of breath and could not see well; singing in ears.

Experiment 6.—Proportion of CO = 0.12 per cent. inspired for 120 minutes.

After 15 minutes: Pink tinge in blood discernible.

After 37 minutes: Palpitation, pulse 96.

After 67 minutes: Slight palpitation; feel rather sleepy.

After 90 minutes: Moderate exercise caused distinct dimness of vision and hearing and a tendency to stagger.

After 120 minutes: On running up stairs once, became distinctly weak in the legs and had to lean against a table. Distinct impairment of vision and hearing and mental confusion.

After 138 minutes: Distinct throbbing headache, which lasted for two hours, with dimness of vision.

Experiment 7.—Proportion of CO = 0.21 per cent.; duration of inhalation, 71½ minutes.

After 34 minutes: Feeling of fullness and throbbing in head.

After 37 minutes: Fullness and throbbing more distinct.

After 45 minutes: Pulse 104, breathing distinctly deeper.

After 59 minutes: Beginning to look pale and yellowish.

After 63 minutes: Felt worse after making any movement in chair.

After 65 minutes: Hyperpnea marked, slight mental confusion.

After 71 minutes: Vision dim, limbs weak, gas stopped.

After 73 minutes: Could walk fairly straight across room; could not form letters on board as well as usual; confused.

After 77 minutes: After walking four times across room, staggered and nearly fell; vision impaired.

After 84 minutes: Attempted to walk along line of one of the boards of floor; did so with much difficulty and much staggering and waving of arms.

During the whole of the evening following this experiment, suffered from headache without nausea or loss of appetite; and during succeeding day, suffered from slight headache.

In these experiments it will be noted that the symptoms were developed slowly. Palpitation only occurs in from fifteen to thirty-five minutes. Acceleration of the pulse comes slowly and is not pronounced excepting in Experiment 2. Yet all the symptoms correspond very closely to the later phenomena observed in my series of experiments. This is because carbonic oxid is a cumulative poison. It produces no effect until a certain degree of saturation of the blood has occurred and a given percentage of the hemoglobin has been reduced. Haldane says: "Distinct symptoms appreciable during rest are not produced by carbonic oxid in otherwise normal air until about .05 per cent. of the gas is present; with about .2 per cent. urgent symptoms are produced." The symptoms depending on the extent to which the hemoglobin is saturated.

The presence of carbonic oxid in the gases of combustion was determined by the hemoglobin reduction test and spectroscopic examination. The test used was Vogel's. One part of blood is mixed with 100 parts of water. To this mixture ammonium sulphid is added to reduce any oxyhemaglobin. If the mixture is now examined with the spectroscope, carbonic oxid is shown by the presence of the double absorption band of reduced hemoglobin in the spectrum. This test was not found to be sufficiently delicate when applied to the blood of the men taking part in the experiment. Positive results were, however, obtained by Haldane's test.[8] A drop of blood is diluted with about 100 times its volume of water; for purposes of comparison a solution of about the same depth of color is prepared from normal blood. Part of this normal solution is saturated with coal gas which alters the color from yellow to pink. The three solutions are then poured into narrow test-tubes of equal diameter and compared. If the depth of color of the first solution now appears to be greater than, or less than, that of the other two solutions, water or blood must be added (to the first solution) until equality is established. The tints of the three solutions are now compared. According to the percentage saturation of the sample of blood under examination, the tint of the first solution will approach to that of the normal blood, or the blood saturated with coal-gas, and thus a rough estimation may be made of the percentage of saturation. This test is much simpler and much more delicate than with the spectroscope, but can not be carried out in artificial light. "In undiluted blood examined in bulk, the peculiar tint, due to the presence of carbon monoxid, can hardly be recognized." I modified the test by making a series of standard colors and comparing the blood to be tested on white filter paper in the same manner as hemoglobin estimations are made with the Tallqvist scale, and found this method to be easy and rapid.

The presence of $NO_2$ in the fumes of the powders is evidenced by the acrid, reddish fumes so irritating to the fauces and conjunctivæ. Chemically, it could be demonstrated, by the copper, spongy-platinum test, to be present constantly. Its absorption into the body was shown by the constant occurrence of free nitrites in the urine. Nitric peroxid in large doses and prolonged exposure cause fatal pulmonary irritation. In small doses it produces the same effects as any of the nitrite compounds. In fact, the latest theory of the action of the nitrites is that they break up into this gas in the body. Knott[9] gives the following formulæ: $C_5H_{11}NO_2+H_2O=C_5H_{11}OH+HNO_2$. Amyl nitrite, water, amyl alcohol, nitrous acid.

The nitrous acid thus produced rapidly undergoes full oxidation: $3HNO_2=HNO_3+H_2O+2NO$.

The oxid of nitrogen so formed instantaneously exerts its well-known affinity for oxygen: $NO+O=NO_2$.

So that we have, then, apparently the identical factor of $NO_2$ to deal with in each case as the active agent.

Ultimately the $NO_2$ or the "nitrites convert the hemoglobin of the blood, not simply into methemoglobin, as commonly assumed, but into what appears to be a mixture of methemoglobin and nitric-oxid hemoglobin.

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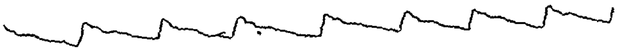
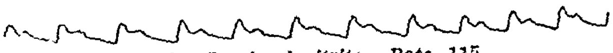
[8] John Haldane: Report to the Secretary of State for the Home Department on the Causes of Death in Colliery Explosions and Underground Fires, London, 1896.

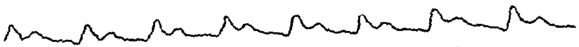
[9] John Knott: Angina Pectoris, American Medicine, Oct. 29, 1904.

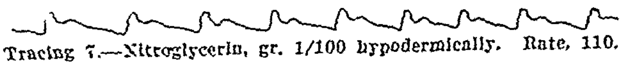
The color and spectroscopic appearance of this mixture are quite distinct from those of ordinary methemoglobin. Amyl nitrite in excess causes further changes, a body apparently identical with photohemoglobin being formed."[10]

The similarity of the action of the nitrites and the fumes of smokeless powders is graphically shown in the appended tracings, Nos. 4, 5, 6 and 7. These represent the normal pulse of the man in No. 4; the pulse one minute after the inhalation of 5 minims of amyl nitrate in No. 5; the pulse after ten miutes' exposure to the fumes from 30 grams of smokeless powder, exploded, in No. 6, and the pulse five minutes after hypodermatic injection of 1/100 grain of nitroglycerin in No. 7. They differ in degree only, and in the rapidity with which the effect is produced. I believe the slower action with the powder is attributable, possibly, to an inhibitive effect of the carbonic oxid.


Tracing 4.—Normal rate, 70.


Tracing 5.—Amyl nitrite. Rate, 115.


Tracing 6.—Powder fumes. Rate, 112.


Tracing 7.—Nitroglycerin, gr. 1/100 hypodermically. Rate, 110.

Lyddite was not investigated. When first introduced it was supposed to have tremendous and widespread suffocative effects. These suppositions have not been borne out in actual experience. Lyddite $C_6H_2(NO_2)_3OH$, trinitrophenol. picric acid, on detonation yields large quantities of carbonic oxid and free carbon. It is likely that any suffocative effect it might possess would be due to the carbonic acid.

Another explosive with marked toxic properties. both in its fumes and on handling, is dinitrobenzene. Oliver[1] reports that 400 milligrams of lanolin containing 0.1 gram of dinitrobenzene rubbed into the groins of a man, produced lividity, cyanosis. and other pathognomonic symptoms in a few hours. Ten minutes' exposure to the fumes evolved in its manufacture has resulted fatally. The symptoms of acute poisoning are[1] nausea, vomiting, congestive headache, faintness and giddiness, loss of control over the limbs, numbness and tinglings. Deep cyanosis is characteristic. Pulse quick. weak. rate of 120, with very low arterial tension. The temperature ranges from 99° to 102° F. The urine may be dark and may contain free dinitrobenzene or nitrates and nitrites. I have had no opportunity to study this explosive.

I have seen what I believe to be a practical application of this question in ordinary city life. Of course. in mining communities it comes up all the time. In Philadelphia. in 1903. on the Fourth of July, vast quantities of cannon crackers were exploded. The day was muggy and close. and in some of the closely built streets the powder fumes lay thick and heavy. The sweetish. acrid. irritating odor of dynamite powders was unmistakable. On that day and the following day. I saw numerous cases of typical "dynamite headache." In two other cases I saw severe intoxications which. I believe, were due to nitrite poisoning. One of these cases I saw with Dr. J. L. Salinger. The patient was a child of 2 years. It was collapsed, stupid, slightly cyanotic, the forehead covered with cold sweat, the pupils dilated, and with a rapid, disordered and barely palpable pulse. There was also diarrhea. After thorough examination we came to the conclusion that the child was suffering from poisoning from the fumes of the cannon crackers. Afterward we learned that, in the immediate vicinity of its dwelling, in a rather narrow, closely built street, there had been an unusually heavy display.

The treatment of powder poisoning must be directed to the dual condition, the nitrite poisoning and the carbonic-oxid poisoning. The former must be met with remedies to restore vasomotor tone. Strychnin in full doses is indicated. Ergotin has been recommended. In moderate cases, the elimination of the carbonic oxid from the blood will proceed rapidly and certainly. In the more profound intoxications oxygen inhalations are indicated, and artificial respiration as long as there is any embarrassment of respiration, the idea here being to establish a degree of hyperoxygenation and to permit mechanical solution of the oxygen where an appreciable amount of hemoglobin is so reduced by the carbonic acid as to exclude it as an oxygen carrier. For the control of the "dynamite headache" the ordinary coal-tar products are not only useless, but dangerous when the heart and vasomotor system are profoundly affected. The coal-tar products seem to have no influence whatever on this headache. The best remedy is that advised by Key.[2] "strong coffee and a linseed poultice to the back of the neck."

These studies show that:

1. The explosion of smokeless powders produces gases which, under some circumstances, may lead to profound intoxication or death.
2. The gases are nitrogen peroxid and carbonic oxid.
3. The symptoms produced are attributable to inhalation of both of these gases.

My thanks are due to Col. S. E. Tillman, professor of chemistry at the U. S. Military Academy, West Point, for valuable aid in some of the chemical problems involved, and to Sergeant, First class. Jean Clare, Hospital Corps. U. S. Army, for assistance in most of the experiments.[11]

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# LOCAL ANESTHESIA

## BY INJECTIONS OF STERILE WATER.

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The subcutaneous injection of water for the relief of non-operative pain was suggested as early as 1868, and since then local anesthesia has been successfully produced by injecting solutions of various drugs into the skin and subcutaneous tissues.

In 1901, Dr. Samuel G. Gant of New York began his experiments with sterile water and has demonstrated that local anesthesia can be obtained quickly by injecting into the skin, mucosa and deeper structures sufficient water to produce a glassy appearance of these tissues; the anesthesia being due, apparently, to the pressure on the terminal nerve filaments. His results were so satisfactory that he now employs it to the exclusion of general and medicinal local anesthesias in most of his rectal operations. Using Dr. Gant's technic, as given below, I have successfully employed sterile water for the production of local anesthesia in the following operations: One exploratory laparotomy, thirty-nine operations for hemorrhoids, three for fistula in ano, two for fissure in ano, three for sebaceous cysts and three for varicose veins of the leg.

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[10] Haldane, Makgill and Mavrogordato: The Action of Nitrites and Physiologically Allied Substances. Proceedings Physiological Society, Nov. 14, 1896: Journal of Physiology, 1896

[11] Other references which may be consulted are: M. Eissler: Handbook of Modern Explosives. Bernadou: Smokeless Powders. Cundill: Dictionary of Explosives. Walke: Lectures on Explosives. Weaver: Notes on Explosives, Bulletin No. 16 of the United States Artillery School, 1904. Guttman: The Manufacture of Explosives. Berthelot, translated by Hake and Macnat: Explosives and Their Power.

The method of producing water anesthesia is very simple. The only requirements are warm sterile water and a hypodermic syringe fitted with a long fine needle.

The temperature of the water is unimportant in producing anesthesia, but warm water causes less discomfort than hot or cold. After thoroughly sterilizing the syringe, needle and skin, the anesthesia is produced in the following manner:

The skin along the line of incision is first anesthetized. This is accomplished by using a very fine needle and by introducing it into (not under) the skin almost parallel to the surface. If the skin is compressed for a few seconds between the thumb and forefinger at the point of insertion, the momentary pain caused by the prick of the needle and the first injection is diminished and often prevented.

A few drops of water are slowly injected, causing a slight wheal to appear, which is absolutely without sensation. The point of the needle is pushed further under the skin through this area of insensibility, and a few drops of water are again injected. Another wheal arises close to the first, and by extending these injections farther and farther the whole line of incision is distended and rendered anesthetic.

When the syringe is empty, it is withdrawn, refilled and the needle reintroduced within the anesthetized area and the injections are repeated as before. After the skin has been anesthetized, the needle is pushed through this distended line into the subcutaneous tissue and injections are made until a firm whitish, ridge-like swelling, about as wide and thick as the index finger, is produced. These deep injections may cause a temporary discomfort due to the rapid distension of the subcutaneous tissues.

If the procedure has been properly carried out, the skin and underlying tissue can now be incised, and, in almost every instance, without pain. The following are some of the advantages of water anesthesia: 1. Effective local anesthesia is quickly and easily produced. 2. No elaborate preparations are necessary. The only requirements are an ordinary hypodermic syringe fitted with a suitable needle and warm sterile water. 3. There are no toxic effects. 4. No nausea, vomiting nor straining follows its use. 5. It can be used in heart, lung or kidney complications without danger. 6. There is no pain following the operation as is often the case after cocain, freezing, etc. 7. Its value in an emergency when general and medicinal anesthetics are not at hand.

On Feb. 27, 1904, water anesthesia was used for an exploratory laparotomy at the Bridgeport Hospital by Dr. Garlick and myself with the following results:

1. The abdomen was opened without pain. 2. Careful handling of the viscera caused no pain. 3. Traction on the mesentery caused pain. 4. Ruptured tubal pregnancy was found and the necessary traction in attempts to bring out t[illegible] As haste was necessary, due to profuse hemorrhage, ether was administered to complete the operation.

In operating for hemorrhoids, it is only necessary in the external thrombotic tumors to anesthetize the skin over the clot which can easily be turned out after the incision is made. For external cutaneous hemorrhoids both the skin and tumor should be distended tightly to produce anesthesia. In operations for internal venous hemorrhoids, the injection is made into the center of the tumor until it is distended tightly and turns white, when it can be removed painlessly by the ligature method.

The advantages of water anesthesia in hemorrhoid operations are: 1. No preliminary preparations are necessary. 2. No dilation of the sphincter is necessary. 3. The operation may be performed either in the office or at the patient's home. 4. The patient is able to continue at his business without loss of time. 5. There is no pain nor bleeding following the operation. 6. There is no danger to heart, lungs or kidneys.

In operations for fistula in ano, the skin and subcutaneous tissue up to the anal margin should be distended and in some cases the mucosa, submucosa and external and internal sphincters have to be infiltrated. In operating for sebaceous cysts, the skin overlying the cyst is first anesthetized and then the needle is plunged between the skin and the cyst wall; as the water is injected it separates the skin from the cyst wall and allows the adhesions, if present, to be cut without injuring the sack. In operating for varicose veins, the skin and subcutaneous tissues are distended and the veins ligated.

In conclusion, I would recommend that water anesthesia be given a thorough trial. Failure at first attempts should not condemn its use for practice will soon enable one to distinguish the proper amount of distensions necessary to produce the anesthesia. I feel sure that when this method has become more familiar, the advantages will be so apparent that its use will soon become general.

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# *Special Article*

## IMMUNITY.

### CHAPTER XIV.

### AMBOCEPTORS AND COMPLEMENTS.

**Experimental Value of Hemolysins.**

The simplicity of hemolytic experiments and the rapidity with which they may be performed and terminated have rendered hemolytic serums particularly useful in the study of amboceptors and of complements, for we are to understand that such serums are toxic to erythrocytes only because of the amboceptors and complements which they contain. All the most important facts which have been learned concerning the action of hemolytic serums have been found to hold true for bactericidal serums as well; hence it is an indifferent matter if principles which are common to both are illustrated by frequent references to serum-hemolysins.

**Technic of Hemolytic Experiment.**

The corpuscles for such experiments are obtained by the defibrination of freshly-drawn blood and the removal of the fibrin. Usually they are made into a 5 per cent. suspension by dilution with isotonic (physiologic) salt solution. Inasmuch as the serum which is present may interfere with the action of the complement or amboceptors of the hemolysin, it is customary to remove it by the so-called washing process. The 5 per cent. emulsion, or the undiluted blood, is centrifugated, the overlying fluid drawn off by means of a pipette and substituted by fresh salt solution;

the corpuscles are thoroughly mixed with the new solution and the process of centrifugation repeated. After from two to four washings any residual serum usually may be disregarded. To test the hemolytic power of a serum one measures identical quantities of the 5 per cent. washed blood into each of a series of test-tubes by means of a graduated pipette and then adds increasing quantities of the serum to succeeding tubes. All tubes are then diluted to equal volumes by means of salt solution, as it is of some importance to maintain a uniform concentration of the corpuscles. The contents of the tubes are mixed evenly by shaking and the series is placed in the thermostat for about two hours; this temperature is necessary for complete and rapid action of the toxic substances. At the end of this time the tubes are placed in the ice chest and left over night in order that the cells may settle to the bottom; or, sedimentation may be accomplished at once by centrifugation.

**Hemolysis.**

In either case, the overlying fluid is colored red by the dissolved hemoglobin in proportion to the extent of destruction of the erythrocytes. In case solution has been complete, the sediment is indistinct and colorless, being made up only of the stromata of cells, whereas in the tubes showing only partial hemolysis the sediment is red and has an indirect quantitative ratio to the coloration of the overlying fluid. By suitable variations in the amounts of serum used, in different tubes, its exact dissolving dose for the given volume of corpuscles may be determined. Although the term hemolysis is a perfectly proper one, we are to understand that serums cause solution of the hemoglobin but not solution of the whole cell; we speak loosely of solution of the corpuscles.

**Similarity Between Bactericidal and Hemolytic Action.**

After Bordet had shown the analogy between bactericidal and hemolytic serums, and after the phenomena of inactivation and reactivation had been developed by Bordet and Metchnikoff, Ehrlich and Morgenroth undertook the study of amboceptors and complements as they occur in hemolytic serums. The facts ascertained by them and the methods of research which they devised have provided many investigators with a starting point for work of the highest importance concerning the bactericidal serums and antibacterial immunity, and their interpretations, moreover, served to extend the side-chain theory of immunity to its present comprehensive limits.

**Solutions of Amboceptors and Complements.**

For the sake of convenience one may speak of a heated immune serum, or one in which the complement has become inactive from age, as a solution of amboceptors, disregarding temporarily the agglutinins, precipitins and perhaps other bodies which the serum contains. Also, since fresh normal serums are rich in complements and usually contain but a small amount of any one amboceptor, they may conveniently be considered as solutions of complements; yet normal serums may not be considered as pure complement and used as such in unlimited quantities for actual experiments, because of the bacteriolysins and hemolysins which many contain. Only a quantity of the normal serum (which in itself is not toxic for the cell) may be used for complementing purposes; this may be as low as, or lower than, 0.1 c.c. for a particular experiment.

**The Absorption of Amboceptors by Cells.**

As pointed out in the preceding chapter, the combined action of amboceptor and complement is necessary for the cytotoxic action of a serum. In view of the fact that the toxic power is lost by exposure to that temperature which destroys complement, it seems that the latter is the actual dissolving or toxic substance, whereas the amboceptor must play some intermediary rôle. Investigations have shown that the two act together in a very definite manner in that the absorption of the amboceptors by the cells is a prerequisite for the absorption and action of the complement. This may be verified by simple experiments. Mix erythrocytes with the homologous amboceptors, and after a period of from twenty to thirty minutes centrifugate the mixture and remove all the free serum from the cells by repeated washings with isotonic salt solution. If the cells are again suspended in salt solution and a small amount of complement is added and thoroughly mixed, the hemoglobin is dissolved out; a control must, of course, show that the complement alone has not the dissolving power. The result indicates that the erythrocytes during their contact with the immune serum had absorbed or combined chemically with the amboceptors, and that the latter remained attached to the cells in spite of the washings to which they were submitted.

**Sensitization.**

It would seem that the union of amboceptor with cell has the effect of rendering the latter susceptible to the action of complement, and for this reason amboceptor-laden cells are spoken of as sensitized cells. Hence, according to the cells and serums employed, we may refer to sensitized erythrocytes, sensitized bacteria, etc. The experiment is called the sensitizing, absorption or binding experiment. An immune serum may be deprived of all its amboceptors in the binding experiment if a sufficient quantity of cells has been used, and it would thereby be rendered incapable of further reactivation by the subsequent addition of complement.

**Order of Action of Amboceptor and Complement.**

If, instead of performing the experiment in the manner described, the process is reversed so that the corpuscles are first treated with the solution of complement and then with the amboceptors, the corpuscles are not hemolyzed. During the washing process the complement is entirely separated from the cells, and from this fact it is clear that direct union between corpuscle and complement does not occur; only sensitized cells take up complement.

The question as to whether the corpuscles in taking up amboceptors do so by chemical combination or by physical absorption has been contended with some vigor. Ehrlich believes that the process is one of chemical union, and if one adheres to this view it becomes necessary to assign binding or haptophorous groups both to the red blood cells and to the amboceptors. In contrast to another haptophore which the amboceptor possesses and which will be described below, that one which unites with the cell is called the cytophilous haptophore. The haptophore of the erythrocyte which enters into the union is an essential part of a receptor of the red cell; consequently we say that the amboceptor unites with a receptor of the corpuscle.

The heating of serum to 56° C. provides one means of apparent isolation of the amboceptors from the complement, but this is not a true isolation in that complement is merely rendered inactive by the heat rather than totally eliminated.

**The Absorption Experiment in the Cold.**

Ehrlich and Morgenroth devised a method by which the amboceptors may be separated from a fresh immune serum without in any way injuring the complement. This is accomplished by performing the binding experiment already alluded to, at a low temperature. The serum, containing both amboceptors and complement, is cooled to 0° C. or slightly above, by means of a freezing mixture of salt and ice. A suspension of the homologous corpuscles is cooled to the same point, the serum is added and the mixture maintained at 0° to 4° C. for fifteen to twenty minutes. At the end of this time the sensitized cells are removed by immediate centrifugation at a low temperature, and are washed entirely free from serum by the use of ice-cold salt solution. If the low temperature has been adhered to rigorously and the work done quickly, the corpuscles are not laked during the manipulations in spite of the presence of both amboceptors and complement. Furthermore, the washed sensitized cells remain intact even when their temperature reaches that of the thermostat, whereas if some fresh normal serum or the serum from which the amboceptors were extracted is added, they undergo hemolysis as readily as when treated with the active immune serum. The original immune serum is now a solution of complement, and fresh corpuscles which are added to it are not dissolved because of the absence of amboceptors.

These results show the following important facts: Amboceptor and complement exist side by side in an immune serum, not as a united substance. Union of amboceptor with cell is independent of complement, the latter being taken up only after the amboceptor-cell reaction has occurred. Amboceptors unite with cells at a low temperature, whereas complement requires a higher temperature for its union and for the ferment-like activity by which it dissolves or kills the cells.

**Complementophilous Haptophore of mboceptor.**

That constituent of amboceptor which unites with the cell has been referred to as the cytophilous haptophore. Ehrlich and his followers believe that complement in establishing connection with the cells does so by combining with a second haptophore of the amboceptor, after the latter has sensitized the erythrocyte or bacterium. Hence, amboceptor has, as the name implies, two receivg groups or haptophores, the second being the complementophilous haptophore (Fig. 7). It is hardly desirable to enter here on various experiments which furnish additional evidence of the amboceptor nature of the thermostabile body. The observed phenomena allow one to assign to it the two haptophores mentioned.

**Action of Amboceptors.**

There is a conflict of ideas as to the nature of the change produced by the amboceptors, as a result of which the cells are made susceptible to the action of complement. Bordet speaks of the amboceptor as the substance sensibilisatrice, the sensitizing substance; and his conception of the action of the two substances he has compared roughly to the opening of a lock for which two keys are demanded. One key, amboceptor, is needed to prepare the lock for the action of the second key, complement, the latter really being the one which opens it.

Metchnikoff applies the name fixator to the thermostabile body, having in mind the action of a mordant in preparing tissues or other substances for the reception of a dye; this differs little from preparator, the word used by Gruber.

The idea of Ehrlich, however, is distinctly at variance with the conceptions mentioned, for he sees in the union of amboceptor with cell nothing more than the introduction of a new chemical affinity, i. e., one which attracts complement, and this new affinity does not lie in the cell itself but rather in the amboceptor (complementophilous haptophore) after the union has occurred. Hence, the terms intermediary body (*Zwischenkörper*), copula of Müller, and desmon of London, are words which carry with them the meaning that the amboceptor first unites with the cell and then acts as a linking substance through which complement finally is put in relation to the cell. This also is the meaning embodied in the amboceptor of Ehrlich, the word indicating more accurately his conception of the method by which the substance acts as an intermediary body.

**Structure of Complement.**

If we consider it established that in the process of cytolysis union occurs between complement and amboceptor we must at the same time assign a haptophorous group to complement. Union would be impossible without it. Corroborative proof of the existence of this haptophore lies in the fact that immunization with complement results in the formation of anticomplement, a prerequisite for which is union of complement with cell receptors in the immunized animal; and this union, it seems necessary to assume, takes place through a binding group. The mere possession of a haptophore, however, does not account for the ferment-like activity of complement. The latter characteristic resides in the so-called zymotoxic group; hence, complement, having a binding and a toxic group, has a structure like that of a toxin.

**Complementoid.**

Somewhat loosely we have said that the inactivity of a serum which has been heated to 56° C. depends on destruction of the complement. This is not strictly true, however, for such treatment destroys only the zymotoxic group, the haptophorous constitu[illegible] Complement altered in this respect is called complementoid, and it is analogous to toxoid, agglutinoid and precipitoid. Two essential facts go to show that this is the essential change wrought by heating. First, immunization with complementoid, heated complement, causes the formation of anticomplement, which could not occur except for the retention of the haptophore. Second, complementoid may exceed true complement in its affinity for the amboceptor, and if sensitized cells are treated with a serum containing a mixture of complement and complementoid, the latter may occupy completely the complementophilous haptophores of the amboceptors and thus may block the way for action on the part of complement. This is again the specific inhibition which has been mentioned in connection with toxoids, agglutinoids and precipitoids. This is the *Complementoid-Verstopfung* of Ehrlich.

**Formation of Amboceptors.**

The amboceptor, as the characteristic property of a bactericidal or of a hemolytic serum, is a specific product of the immunization, whereas the amount and character of complement in the immunized animal undergoes little or no change. We are, of course, obliged to consider the amboceptors as a product of the cells of the body. In the terminology of Ehrlich, they are discarded cell receptors, and with their two haptophores represent a more complex structure than either the receptors of antitoxin or agglutinin; the latter are uniceptors; the former amboceptors, and because of their higher differentiation Ehrlich has called them receptors of the third order (Fig. 7).

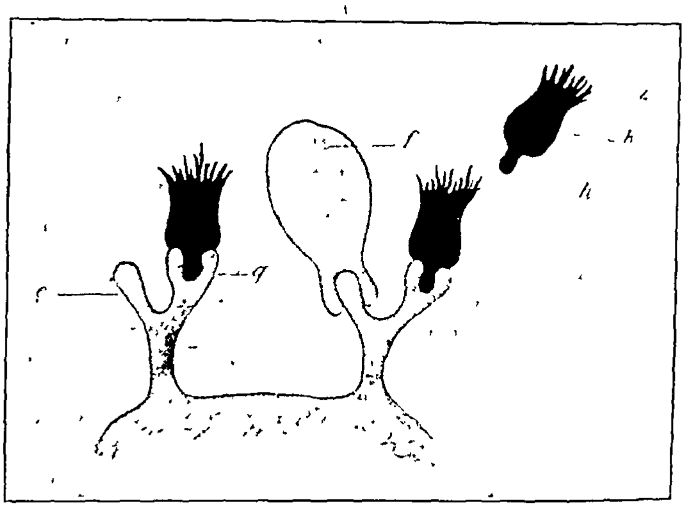


Fig 7.—Graphic representation of receptors of the third order, and of some substance uniting with one of them. *c*, Cell receptor the third order, an amboceptor; *c*, one of the haptophores of the amboceptor, with which some food substance or product of bacterial disintegration, *f*, may unite; *g*, the other haptophore of the amboceptor with which complement may unite; *K*, complement; *h*, the haptophore, and *z*, the zymotoxic group of complement. From Ehrlich's "Schlussbetrachtungen," Nothnagel's System of Medicine, vol. viii.

When micro-organisms gain entrance to the body they are killed and dissolved in considerable masses. As a result of the solution, certain bacterial constituents reach the circulation, and among them are molecules or receptors which possess haptophores capable of uniting with a particular type of amboceptor, the latter being an integral part of some tissue cells. This union having taken place, an affinity for circulating complement may be created as in the test-tube experiments. We have thus the possibility of stimulation of the cell by the bacterial constituent itself as a toxic or unusual food substance, or the toxic action may be caused by products of disintegration of the bacterial substance, the disintegration having been accomplished by the digestive action of the complement which was taken up by the amboceptor. The effect is that of an unusual stimulation, in response to which the cell, if not fatally injured, reproduces many amboceptors corresponding to the type which was occupied or injured. As in the formation of other antibodies, the new-formed amboceptors reach the general fluids of the body.

Concerning the specificity of serum-hemolysins and serum-

**Specificity of Bactericidal Amboceptors and Complements.**

bacteriolysins for their homologous cells, we, of course, refer to the specificity of the whole amboceptor-complement complex. It is necessary to throw the responsibility on both substances, because of the variations which exist among complements as well as among amboceptors. Inasmuch, however, as the heat-resistant body alone is increased during immunization or infection, the greater part of the specificity would seem to depend on the nature of the amboceptor rather than on that of complement. No theory except that of Ehrlich offers at present a tangible explanation of the feature under discussion.

*(To be continued.)*

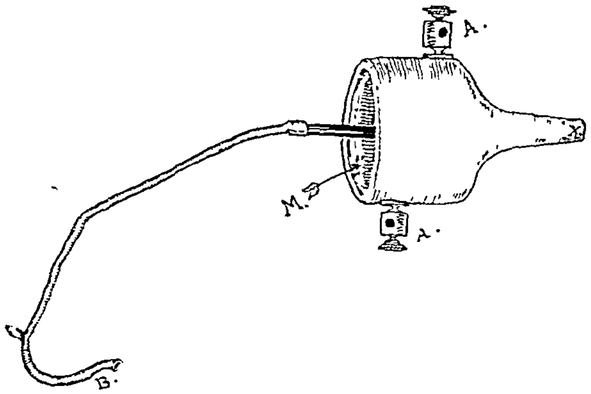
## *New Appliance*

### AN APPARATUS FOR APPLYING HEATED AIR TO THE EAR.

ALBERT C. HEATH, M.D.

ST. PAUL, MINN.

This appliance may be used with any cautery battery or motor for cautery use by attaching the cords (wire) which one ordinarily uses to the cautery handle. After making these connections the current is turned on, slowly at first, till the required amount of heat is obtained. Air is then forced through the rubber tube, either by means of compressed air (small pressure), hand bulb, or by blowing with the lips. If the end (X) is put very near the operator's cheek or in his ear, he can find out the temperature of the heated air. This may be increased or decreased at pleasure, by means of the rheostat connected with the cautery battery. I have found that almost one-half the amount of current necessary to light, so to speak, a large cautery nasal knife, will generate a considerable amount of heat. If the full strength of the cautery current is turned on at once it may melt the connections of the metal tube.



Aural air heater. X, End of otoscope for insertion into external auditory canal. A, Binding post for attachment of end of cautery cord (wire). B, End of tubing through which the air passes that is to be heated. M, Open end of otoscope through which, by aid of illumination, the definite application of heated air to any part of the external canal or drum membrane may be observed.

This appliance has the following advantages:

1. Prompt graduations of heated air by means of the rheostat.
2. The otoscope, with illumination, makes it possible to see what is being done and so makes the application more definite.
3. Lack of danger of burning the external canal, because no part of the instrument is any hotter than the heated air that is being utilized.
4. Simplicity of construction and operation.
5. It can be used in combination with pump massage, so to speak; when the alternate out and in strokes are used, each in stroke of the pump produces a gentle puff of heated air.

It is my custom to put the otoscope in the ear, with a very small amount of current turned on, and then to force air through the rubber tube and gradually, by means of the cautery rheostat, to increase the current and consequently the heat. I usually increase the heat to the point of toleration and keep it there for a greater or less period. I use a gentle blowing pressure and try not to force the air through too violently.

I am convinced that this heater makes the application of heated air a definite therapeutic procedure; the degree of heat being controlled, as well as the point of application being under the direct observation of the operator.

## *New Instrument*

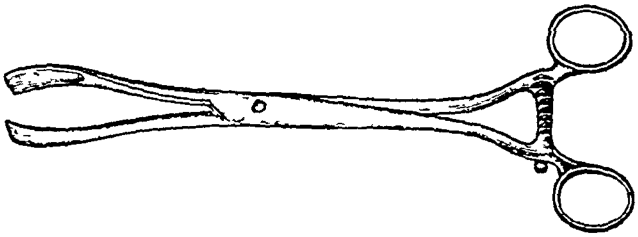
### UTERINE ELEVATOR FORCEPS.

THOMAS S. CULLEN, M.B.

BALTIMORE.

When dealing with adhesions in the pelvis, it is often necessary to draw the uterus upward and forward so that the adhesions can be cut under guidance of the eye. Traction may be made by grasping the round ligament, the margin of the tube or the utero-ovarian ligament with artery forceps, but in inflammatory cases the tissue is peculiarly prone to tear and considerable bleeding is liable to follow if much traction be made. The uterus may be grasped with bullet forceps. These are apt to tear out if much traction be exerted, and, even if they do not, subsequent bleeding from the points where the instrument grasped the organ is a source of annoyance and several sutures are often required to check it.

About two years ago, I had forceps made that obviate most of these difficulties. One might very well speak of the instrument as a "cross" between obstetrical and artery forceps. The handles are those of a pair of artery forceps, the blades are nearly an inch broad and viewed from the inner surface are concave from side to side and from above downward. In other words, they are so formed that they will accommodate themselves to the general contour of the uterus, and if tightly applied will hold the organ firmly. If the forceps be snugly applied to a thumb, it is impossible to withdraw it and yet at the same time no pain or unnecessary pressure need be felt. The forceps may be fenestrated if desired.



The traction forceps have the following disadvantages: 1. They sometimes slip off, especially if the uterus be infantile. 2. It sometimes requires both hands to apply them.

In the two years I have, on the whole, found them very satisfactory. Even when dealing with the large, boggy uteri, which bleed so readily, there has been no injury nor subsequent bleeding, save in one instance, where a slight abrasion occurred. Often in such uteri a depression fully 3 mm. is made by the forceps, but in a few minutes all trace of it has disappeared.

When suspension of the uterus is advisable the sutures can be easily placed through the fundus between the blades of the forceps.

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**Cultivation of Rubber in Ceylon.**—The *Journal of Tropical Medicine* states that the cultivation of rubber is being taken up seriously in Ceylon. During October about 60,000 trees of the Para and Castillon varieties were planted in the island.

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## THE ROUTES OF INVASION BY THE BACILLUS TUBERCULOSIS.

Just now the prominent question in the pathology of tuberculosis is the relative frequence of infection through food and through inhalation, the importance of bovine tuberculosis as a source of the disease in man being a part of the same problem. We are fairly familiar with the possible ways in which the body may be invaded, but in spite of the enormous material always at our disposal we have still failed to find a way to determine in just what manner each particular case has been infected; and this information is essential for the solution of the problem. Clinical observation can help but little, chiefly because of two factors: the long period of time that may separate the infection of the body and the development of symptoms, and the omnipresence of the tubercle bacilli. Hence, the source of infection of each case must nearly always be uncertain, however strongly a certain origin may be suspected; for example, if a patient develops tuberculosis after drinking milk from tuberculous cows, it is still possible that the disease as manifested may be the result of an infection received years before, and it is highly probable that the patient has been inhaling bacilli from various sources nearly every day.

Anatomic investigations are also inconclusive. Not long ago it was thought proper to consider the largest and most advanced area as the primary site of the infection, and the smaller areas as secondary, and many theories have developed on evidence of this sort, which is altogether worthless. Experimental inoculations have shown conclusively that the place first infected may show but a few minute tubercles, while more remote lesions have advanced to a large size. Another mistake was that of assuming that infection of the tissues must occur at the point where the bacilli entered the body, and that hence a food tuberculosis should show intestinal lesions, and that an inhalation tuberculosis should always start in the lungs. We now know, however, that the bacilli can penetrate the tissues without producing recognizable changes, and may infect first the regional lymph glands; they may even enter the blood directly through the thoracic duct and may produce the primary lesion in any part of the body. It is perfectly possible, therefore, to have a primary tuberculous meningitis, or synovitis, or osteomyelitis, with no other tuberculous lesion existing in any other part of the body; how often such is the case, however, is a question that is most difficult of solution.

New observations from Weichselbaum's laboratory have added difficulties, by showing the possibility of the latent existence of tubercle bacilli within the human body without the production of anatomic changes. The mesenteric, mediastinal, and cervical glands, and also the tonsils were taken from bodies of children dead from acute infections and free from all evidences of tuberculosis. Part of each gland was injected into a guinea-pig and part was studied microscopically. In a considerable number it was found that the glands contained virulent tubercle bacilli, as shown by the infection of the animals, although there were no microscopic evidences of tuberculosis. If tubercle bacilli can live in lymph glands without producing any lesions, it is easy to imagine them passing from gland to gland until they eventually lodge and produce the first tubercles at a point remote from the site of their entrance. Bartels and Spieler have obtained some similar results in a series of interesting experiments, in which they aimed at reproducing as nearly as possible the conditions under which human infections may occur. Guinea-pigs were kept in as normal circumstances as possible in the rooms occupied by consumptives, and they often developed tuberculosis, both of the lungs and of the mesenteric glands; here, also, it was possible in some cases to find tubercle bacilli when there were neither macroscopic nor microscopic lesions. When tubercle bacilli were fed to guinea-pigs, or when the bacilli were simply placed in their mouths, they often developed widespread tuberculosis without any lesions of the mucosa.

Evidently the occurrence of marked pulmonary lesions does not by any means prove that the infection is through inhalation, any more than a predominance of lesions in the mesenteric glands proves that the l cilli have been taken in with the food. There is no ce tain relation between the point of entrance of the fection and the point of development of the dise Of great clinical interest in this connection is the p sibility of apical tuberculosis of the lungs as a dire extension from the tonsils by way of the cervica lymphatic apparatus. M. Wassermann[1] has particularly urged this, believing that in many cases the bacilli enter the tonsils and pass along the cervical lymphatics (we have shown above that this can occur without the development of recognizable lesions in the lymph glands,) to the parietal pleura over the apex, producing here a pleuritis which involves the visceral pleura, and in turn the lung tissue. He cites cases which he thinks have originated in this way, one of the clinical characteristics being the occurrence of sharp pains under the clavicle and in the shoulder, before evidences of tuberculosis appear. In support of this theory may be mentioned the extremely common occurrence of dense bands of adhesions between the two pleural surfaces at the apex, often associated with definite evidence of healed tuberculosis. It can hardly be denied that this is a possible route for infection, but again the important and unsolved question is the relative frequence. Probably it is not the usual source of apex tuberculosis, for careful dissections have shown that this most frequently begins in a small branch of the posterior superior bronchiole, and not in the pleural surface.

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[1] Berl. klin. Woch. Abstract in The Journal, page 76.

## THE RELATION OF THE HYPOPHYSIS CEREBRI TO ACROMEGALY.

There is no aspect of modern medicine more fascinating than that which deals with those glands which possess a so-called internal secretion. While the physiology of some of these structures is still incomplete, that of others is fairly clear, and the field is one in which pathologic lesions with the concurrent alterations in function may well serve as aids in clearing up obscure physiologic questions. In the case of the thyroid gland, and to a lesser extent in the case of the adrenals, physiology has been aided both by pathology and by experimentation, but in the case of the hypophysis cerebri experimentation is extremely difficult, on account of the anatomic situation of the gland, and we must rely largely on clinical and pathologic data to furnish us with physiologic facts.

The question of the function of the hypophysis cerebri or pituitary body has been investigated to some extent by observing the effect of the injection of extracts of the gland into animals. It can not be said that striking results have been obtained by this method. Substances which raise the blood pressure, and others which lower it, have been isolated, but in no case have lesions in any way resembling acromegaly or giantism been produced. Perhaps such results could hardly be expected if we accept the widely held view that acromegaly is due to a hypersecretion or to a changed secretion of the hypophysis. The disease is generally a chronic one, and it is likely that injection experiments would have to be carried on for months or even for years to imitate the effects of such a hypersecretion. As far as pathologic anatomy is concerned, one fact stands out in the recent studies of acromegaly, and that is the constant presence of some lesion of the hypophysis. While the majority of observers see a causal relation between the enlarged hypophysis and the acromegaly, a fair minority think that the enlargement is an effect and not a cause. This latter view is supported largely on account of the fact that there are a good many cases on record in which a tumor of the hypophysis existed without acromegaly. It is questionable whether this apparent disagreement with the hypersecretion theory of acromegaly can not be shown to be invalid in many, if not in most, of the reported cases of hypophyseal tumor without acromegaly.

Assuming, for the moment, that acromegaly is due to a hypersecretion of the hypophysis, how can we explain these cases of hypophysis tumor without acromegaly? A review of such cases shows at once that some of the so-called tumors are destructive inflammatory lesions, such as gummata or tubercles. In other cases, the growths are metastatic, and these tumors also necessarily destroy the gland substance. The same is true of spindle cell sarcomata and similar tumors which spring from the gland framework and destroy the more important structures. The difficulty arises when we attempt to explain the lack of acromegaly in cases with adenomata of the hypophysis, as this is the lesion most frequently found in latter years in this disease. In some instances, acromegaly is probably overlooked, for we know that there are cases, the so-called *fruste* form of the French, in which the ordinary lesions are very slight in degree. In other cases, the hypophyseal lesion may have occurred in individuals of advanced age.

Cestan and Halberstadt claim that acromegaly does not occur after the age when the periosteum ceases to have marked bone-forming tendencies. In some such cases there is evidence to show that excessive obesity may take the place of the ordinary lesions, a sort of vicarious acromegaly. On the other hand, it is difficult to explain true acromegaly resulting from primary sarcomata of the hypophysis, just as it is difficult to explain a lack of Addison's disease in primary new growths of the adrenals.

There is a good deal of evidence to show that in such cases the tumor cells may take on the function of the gland cells from which they originated. Such a thing has been observed in bile-forming liver tumors, for example. Whether the hypophyseal enlargement is secondary, as Kollavits[1] claims, or whether it is primary, as the majority of observers hold, is not yet satisfactorily settled and more work must be done before we can reach a definite conclusion.

## EPIDEMIC CEREBROSPINAL MENINGITIS.

During the month of April and the last week in March the deaths from epidemic cerebrospinal meningitis in New York City have averaged over 100 a week, and toward the end of the month the fatality was rather on the increase than on the decrease. Over 1,000 deaths from the disease have occurred in New York City since the beginning of the present year. It is easy to understand, then, that every effort is justified in preventing any further spread. Accordingly, though the affection has not been proved to be contagious, the New York City Department of Health has announced that hereafter the disease must be reported and that every room in which it has occurred must be disinfected and every patient as carefully isolated as for any of the known virulently contagious diseases.

This does not determine the contagious nature of the disease, but is only an extraordinary precaution adopted in order to try to meet a puzzling dilemma. In New York, so far, medical attendants on those suffering from the disease have not shown any special liability to contract the affection, but this can not be used as an argument against its contagiousness, since a physician in Philadelphia and one in New Haven caught the disease from patients and died. An argument, however, against the ordinary contagiousness of the disease is the fact that many physicians, in the treatment of the affection, have freely tapped the spinal canal and have removed quantities of pus containing the micro-organism that is considered to be causative. Even with the most careful precautions, some of this material has been sure to soil the hands of the operator, and very few physicians are without cutaneous lesions around the finger nails, especially during winter weather, through which, if the micro-organisms were likely to gain an entrance in this way, it would surely have obtained a foothold within the body; yet no such cases have been reported. The subject certainly needs much study. The affection has, however, at present a definite tendency to occur in the crowded portions of cities, and there is every justification for supreme precaution in order to prevent, if possible, its spread, or at least to test the efficacy of thorough disinfection.

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[1] Deutsche Zeit. f. Nervenheilkunde, vol. xxviii, No. 1.

In some fifty cases in different hospitals of New York City, diphtheria antitoxin has been used either subcutaneously or by injection into the spinal canal, but few who have watched the results consider that this remedy has produced any beneficial effect. In a smaller number of cases aseptic horse serum has been used in the same way, but with equally futile results. While in some cases the well-known anomalous course of the disease has seemed to justify the thought that some remedial measure, employed just before a change for the better began, was the causative factor in producing this change, larger experience has proved that all the remedial efforts during the present epidemic have added to the chaff and not to the grain of therapeutics. Unfortunately there comes with this the definite announcement that the disease is much more fatal than it was last year, the death rate in most of the hospitals being at least 20 to 25 per cent. greater. Besides, the convalescence of those who recover is, as a rule, much more prolonged than it was last year and the sequelæ are much more serious and give little promise in many cases of ever permitting the patients to be quite themselves again.

## THE TREATMENT OF ACUTE HEMORRHAGIC PANCREATITIS.

Our knowledge of diseases of the pancreas, apart from neoplasms, is of comparatively recent origin, but enough has been learned to place them therapeutically in the category of surgical disorders. The etiology of these affections is exceedingly obscure, the causative factors in some instances no doubt being bacterial, while in others they are with even greater certainty chemical. In yet another group of cases, arteriosclerosis and atheroma are the underlying factors. The exciting agents may be conveyed through the blood stream or through the ducts of the pancreas. The inflammation to which they give rise under these circumstances may be hemorrhagic, suppurative or gangrenous. The resulting symptoms are often suggestive of intestinal obstruction, with constipation, severe abdominal pain and distention and vomiting. The expression becomes anxious and pinched, and the skin and conjunctiva may assume a yellowish tint. The pulse is small and rapid, while the temperature is irregular and variable. A tender mass may be palpable in the epigastrium.

The clinical picture is thus not distinctive and the diagnosis is accordingly difficult. When, however, the condition is suspected and its presence can with reasonable certainty be recognized, the only hopeful method of treatment is surgical. A case illustrative of the good results to be obtained from such a course has recently been reported by Mr. T. C. Litler Jones.[1] The patient was a woman, 26 years old, obstinately constipated, who on turning in bed was seized with severe abdominal pain, as "if something had twisted." In a little while vomiting set in, the abdomen became distended, the expression anxious, the mouth dry, the tongue covered with a foul fur. Free fluid was demonstrable in the abdominal cavity and a painful area was present in the epigastrium with localized swelling. The pulse was feeble, fluttering and accelerated, the temperature subnormal. It was thought that perforation of a gastric ulcer had taken place; accordingly, the abdomen was opened and about three pints of bright blood mixed with serum were evacuated. Areas of fat necrosis being observed at the entrance to the lesser sac of the peritoneum, an opening was made through the gastrocolic omentum, disclosing the discolored, edematous and in places hemorrhagic pancreas. A longitudinal incision was made through this organ after the surrounding area had been packed with gauze. The presence of a possible obstructing stone or abscess was looked for, but only a dilated space was discovered by the examining finger. This space was packed with gauze, the end of which was brought out of the abdominal wound, and the latter in turn was closed in its lower two-thirds. The packing was removed after thirty-six hours, when a discharge of clear pancreatic fluid began and continued for a time. Except for an abscess in the abdominal wall, recovery was uncomplicated.

The foregoing case of hemorrhagic pancreatitis is but one of a considerable number that have now been placed on record in which, sometimes after a correct diagnosis, at other times after an incorrect diagnosis, successful operation has been undertaken, whereas merely expectant treatment would in all likelihood have terminated fatally. Here, as in a number of other conditions, the ground can be taken that the risk of operation is less than the dangers from non-interference. Of course, the chances are better for successful results from surgical intervention the earlier the diagnosis is made, and with this end in view the possibility of pancreatic disease should be considered in any case presenting obscure abdominal symptoms, and especially those of intestinal obstruction not attributable to any obvious condition or to one of the ordinary causes.

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[1] Lancet, Feb. 18, 1905, p. 418.

## TRUTH AND POETRY CONCERNING URIC ACID.

### XV.

Despite the discouraging results of the attempts to explain the excess of uric acid in the blood in gout by studies of uric-acid excretion, total nitrogen excretion, and phosphoric-acid excretion, investigators have tried in various other ways to get clues to the explanation of the phenomenon. Some have sought to show that the excretion of uric acid is faulty owing to disease of the kidneys, others that there is a retention owing to the occurrence in the blood either of a form of uric acid unsuitable for excretion or of conditions which are unfavorable to solution of ordinary uric acid and urates, and still others that there is an increased production of uric acid, oxidative or synthetic, owing to the hyperactivity of certain organs. No efforts have been made so far as we know to determine whether or not the destruction of uric acid which normally goes on in the body is decreased, though it is important that we should be definitely informed on this point.

The idea that uric acid is retained in the blood in gout on account of impairment of the excretory power of the kidneys, due to organic or functional disease, has been strongly held by Garrod, by Levison, by Luff[1] and by Strauss,[2] and as strongly opposed by Cantani, by Ebstein, by Pfeiffer, by Schreiber,[3] by Schmoll, by Smith-Jerome and by Reach. Those who favor the view urge (1) that there are periods of diminished uric-acid excretion in gout, followed by periods of increased excretion; (2) that it is rare to find cases of gouty arthritis at autopsy unassociated with disease of the kidneys; (3) that it is common at autopsies on nephritic patients to find joint deposits which have been wholly unsuspected during life, especially in one particular form of kidney disease, namely, granular atrophy; (4) that toxic influences such as lead poisoning and alcoholism stand in an etiologic relation both to gout and to contracted kidney; (5) that uric-acid retention obviously occurs in nephritis and is associated with excess of uric acid in the blood; (6) that in gouty cases, without albuminuria or casts in the urine, defective functioning of the kidney may often be detected by observing beginning hypertrophy of the heart, changes in the eye grounds, nitrogen retention without increase in body weight, slowed excretion of methylene blue and alterations in the molecular concentration of the urine. On the other hand, those who oppose the view maintain (1) that the excess of uric acid in the blood in gout precedes the development of kidney disease and that many gouty patients have normal kidneys; (2) that the disease of the kidneys common in the later stages of gout is not the cause but the effect of the gouty disorder, and (3) that the kidneys in gout are capable of excreting far larger amounts of uric acid than normal if the formation of the substance in the body be markedly increased by thymus feeding. The first objection has been met by Minkowski's assumption that when the kidneys seem normal, in reality a functional disease exists, in which the secreting elements of the kidney alone are affected, leading to an increase of the "threshold" for uric-acid excretion; and Strauss has tried to deprive the third objection of its force by bringing the proof that, even in true nephritis, uric-acid excretion may be increased by feeding large amounts of meat extract.

The hypothesis that an excess of uric acid accumulates in the blood in gout, not on account of diseased excretory organs, but owing to its existence in some forms other than the ordinary—in a form, in fact, in which the kidneys can not seize hold of it to excrete it, is an old one; it was suggested as early as 1860 by Parkes, and has since been revived by various physicians. For a time, Pfeiffer held this view, but the evidence he brought in favor of it by means of his so-called "uric-acid filter," has been shown to be invalid. Still, no less a scientist than Minkowski has recently expressed the opinion that uric acid may circulate in the blood in a form which does not appear to be suitable for excretion into the urine, and the possible existence of such conditions should therefore be borne in mind. Others think it less probable that a special form of uric acid exists in the blood than that the conditions of solubility vary; a decreased alkalinity of the blood, for example, being held guilty, by Roberts and others, for uric-acid retention.

In contrast with the above views, in which uric-acid retention is held answerable for the excess of uric acid in the blood in gout, are the speculations which assume that the established excess is the consequence of increased formation of the substance. When such speculations first arose, disease of certain organs—the spleen or the liver, according to the prevailing view at the time of uric-acid formation—was postulated as the cause of the increased production. At the period when uric acid was supposed to be derived from albumin by faulty oxidation, slowing of the metabolic processes in various tissues, it was thought, could account for increased formation in gout; and, later, when the oxidative origin from nucleins had been demonstrated, the excess of uric acid in the blood was attributed by some to hyperactivity of the bone marrow and muscles, by others to increased destruction of leucocytes and by still others to a generally increased cell destruction in the body. There is no proof, however, of the existence in gout of any of the conditions mentioned and, should they exist, it is not easy to see why their effects should not be neutralized either by increased destruction of uric acid or increased excretion of the same.

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[1] Luff, A. P.: The Pathology and Treatment of Gout. Brit. Med. Jour., Lond., 1898, i, 150; 1066.

[2] Strauss, H.: Pathogenese und Therapie der Gicht im Lichte der neueren Forschungen. Würzburger Abhandl., 1902, ii, 209.

[3] Schreiber, E.: Gicht: Ueber die Harnsäure unter physiologischen und pathologischen Bedingungen. Stuttgart, 1899.

The question of an increase of uric acid by synthesis in gout has scarcely yet been put. Wiener suggests it as a possibility, on account of the relation of oxaluria to gout, but no experimental work of any importance in this connection has yet been done.

Finally, since we are totally ignorant of any modification of uric-acid destruction in gout, we can sum up our knowledge concerning the cause of uric-acid excess in the blood by saying that it is not yet wholly clear, but that probably several factors are variably concerned, and that none of the factors alone can explain a permanent excess without the assumption of a pathologic retention, for otherwise equilibrium would always be restored by increased excretion.

### SANITARY CONDITIONS IN THE BAHAMAS.

The Geographical Society of Baltimore two years ago undertook a scientific expedition to the Bahamas, the islands off the Florida coast which are owned by Great Britain. The report of this expedition has recently been published and that portion entitled "Sanitary Conditions in the Bahama Islands," by Dr. C. A. Penrose, is of especial interest. He states that as different islands are inhabited by descendants of different races it is possible to study racial peculiarities under similar tropical conditions and varying degrees of civilization. In certain islands the whites outnumber the negroes, while in others the negroes are in the majority; and between these two extremes mixtures of black and white blood can be noted. From a racial and scientific standpoint this affords an excellent opportunity of studying the immunity, or lack of it, of the whites, blacks and mulattoes and of contrasting the one with the other. Dr. Penrose describes in detail the equipment and method of work among the natives. He states that by far the greater proportion of diseases are of the commoner varieties. Tuberculosis on the islands, he found, is generally of the fibroid or "chronic" type, and he did not see a case of the so-called "galloping consumption." This fact should be given consideration as the Bahamas have frequently been recommended as a health resort, especially for pulmonary conditions. Rheumatism and lumbago and, at certain seasons, malaria are prevalent diseases. Everywhere throughout the islands he found diseases of the eye. He found several cases of congenital pigmentary retinitis and choroiditis with optic nerve atrophy, considered by the authorities to be due to consanguineous marriages. Leprosy is very common. With the exception of a lazaretto at Nassau, the government has made no provision for these unfortunates. In studying the cases of degeneracy on the islands, Dr. Penrose came to the conclusion that it is largely caused by intermarriage. A genealogic chart is included in the report which illustrates this very clearly. The family in question includes among its members idiots, lepers, deaf mutes and blind. Dr. Penrose is of the opinion that unless new blood is introduced into the islands succeeding generations will sink to even a lower state of degeneracy, and that the colony will ultimately exterminate itself by intermarrying. He advises empowering the authorities to remove and to isolate all lepers and all persons whom they have reason to suspect will develop leprosy; to confine all idiots and imbeciles in an asylum, and to introduce new blood among the inhabitants. The government supports a well-equipped hospital at Nassau; there are no private wards and treatment is free, but in spite of this many of these people are suffering for lack of medical attention.

### SKIPPING-ROPE FATALITIES.

Even among the apparently milder forms of children's athletics there are some that are capable of producing injury or are even deadly at times. The newspapers have recently reported the death from heart failure of three children in a skipping-rope competition and a little later another case of fatal appendicitis from the same cause was also reported in the press dispatches. Such deaths are not so rare and it would seem a proper subject of inquiry just how far and why this particular form of exertion is more dangerous than other similar pastimes indulged in by young children so commonly at this season of the year. In some respects it would seem an almost ideal exercise in moderation, but we do not hear so often of death occurring in other games involving equal or even greater, though more varied, muscular exertion. All excesses and overexertion should, of course, be discouraged, but if there is any special peril in the skipping-rope exercise *per se*, it certainly should be discouraged as a child's pastime.

### THE CONFERENCE OF THE COUNCIL ON MEDICAL EDUCATION.

The Council on Medical Education of the American Medical Association held the first of its annual conferences with the various state and territorial licensing and examining boards, and other bodies interested in medical licensure and medical education, at Chicago last week. The governors of twenty-nine states appointed representatives of their respective examining boards, seventeen states being represented. Representatives were also present from both of the college associations and from the United States Army and the Marine-Hospital Service, the American Medical Association being represented by the members of the council and by the president-elect, Dr. Lewis S. McMurtry. The subjects that came up for discussion were uniform entrance requirements, uniform college curricula, a uniform standard for recognition of medical colleges by all the states, the relation between the college of liberal arts and the medical school, and reciprocal registration. The importance of reciprocity among the states was emphasized by the earnestness with which this subject was discussed. Especially noteworthy was the discussion on the question of how the American Medical Association can co-operate with these various bodies in elevating and controlling medical education. All the representatives were unanimous in the opinion that the association, through the Council on Medical Education, is pre-eminently fitted for bringing together the various bodies that are so earnestly working, each in its own way, to raise the standard of medical education. A full report of the proceedings of the conference will be published in The Journal later.

## Medical News

### ALABAMA.

**Isolation Hospital Ready.**—The new isolation hospital for Montgomery, consisting of five separate buildings, commodious and thoroughly equipped, is ready for formal transfer to the city.

**Personal.**—Dr. Coleman D. Gay has been elected a member of the common council of Lineville.——Dr. Gilbert B. Wimberly, Reform, missed his footing while attempting to board a street car in Mobile and fell, cutting a gash in his chin and knocking out a tooth.

**Commencements.**—The thirty-ninth annual commencement exercises of the Medical College of Alabama were held at Mobile, April 7. Dr. George A. Ketchum read the report of the faculty, degrees were conferred on a class of 31 by Hon. J. A. Abercrombie, president of the University of Alabama, and Lieut.-Gov. Dr. Russell McW. Cunningham, Ensley, delivered the annual address on "The Doctor—His Qualifications, His Work and His Reward."——Birmingham Medical College held its eleventh annual graduating exercises April 3. Degrees were conferred on a class of 14 by Dr. Benjamin L. Wyman, dean of the faculty; Dr. Edward H. Sholl delivered the charge to the class, and Dr. Harris A. Gant, Jackson, Miss., delivered the annual address on "The Importance of Medical Organization, Which Leads to Higher Medical Education." Lieut.-Gov. Cunningham also addressed the class.

### CALIFORNIA.

**Banquet President.**—Dr. Frank L. Adams, Oakland, president of the Medical Society of the State of California, was the guest of honor at a banquet, April 8, at the Hotel Metropole, given by the Alameda County Medical Society.

**Hospital Notes.**—The new hospital at the Odd Fellows' Home, Oroville, was dedicated April 7.——Providence Hospital, Oakland, was opened with formal ceremony, April 5, just one year after its dedication.——The annex to the Los Angeles County Hospital, consisting of two ward buildings, an isolation hospital and a power house, has been completed and turned over to the authorities.

**Personal.**—Dr. Frederick H. Huning, Ventura, has been appointed physician of Ventura County.——Dr. Irzael M. Proctor, Petaluma, has resigned as president of the local health board.——Dr. Henry C. Brown, San José, has returned after a ten months' stay abroad.——Drs. Franklin M. Seibert, W. Lee Norris and I. R. Goodspeed have been appointed members of the San Mateo Board of Health.——Dr. Gerald J. Fitzgibbon has returned to San Francisco after a six months' tour abroad.

**The Governor's Veto.**—Governor Pardee's message which accompanied his veto of the antivaccination bill recently passed by the legislature, which has been commended in The Journal, contains the following paragraphs which are noteworthy for the clear expression of the principle involved in the vaccination question:

> Before the discovery and application of vaccination by the immortal Jenner, smallpox was nearly universal, and it was considered to be a grave disadvantage not to have had the disease in childhood. Severe and terrible epidemics have gradually but surely become things of the past, except when from any cause vaccination has been neglected. That accidents of many kinds, even death, may follow vaccination, is not and can not be denied. But that the number of these accidents, compared to the many, many thousands—even millions—of times which this beneficent procedure is practiced is anything but infinitesimal is not borne out by the facts. When vaccination is compulsory, and the law is well administered, there is but little smallpox; so little that those protected by vaccination soon lose their fear of the dread disease; and turning our attention to the lesser evils of the vaccine virus, many of us conjure a fear, not warranted by facts, against the very thing that saves us from a much worse fate. This, I think, is what has called into being the bill which I now return to you unsigned. Were it to become a law, there can be no doubt that vaccination would soon fall into practical disuse; and thus would be prepared among our children (not mine, for they shall always be protected) a field for smallpox to fairly revel in.

### COLORADO.

**Hospital Sold.**—St. Luke's Hospital, Leadville, has been purchased by a syndicate of physicians and will be remodeled and enlarged.

**Goes to Penitentiary.**—Dr. Emmett E. Sonnanstine, Colorado Springs, was taken to Canon City, April 12, to serve a term of five to six years in the state penitentiary for a statutory offense against a young girl.

**State Board Organizes.**—The State Board of Health met at Denver, April 10, and organized. Dr. William H. Davis, Denver, was elected president; Dr. George C. Steinen, Denver, vice-president; Dr. Frank N. Carrier, Canon City, treasurer; Dr. Hugh L. Taylor, Denver, secretary, and Dr. Minnie C. T. Love, Denver, chairman of the executive committee.

### GEORGIA.

**Personal.**—Dr. Fred Grady Hodgson has been appointed to the medical staff of the Wesley Memorial Hospital, Atlanta.

**Applies for Charter.**—The Atlanta Society of Medicine filed application for a charter, April 5. The incorporators are Drs. Alexander W. Sterling, Luther P. Stephens, Miller B. Hutchins, Walter B. Emery, Emil Van Goidtsnoven and E. Bates Block.

**Anti-Tuberculosis Commission's Work.**—The anti-tuberculosis commission appointed by the governor met at Atlanta, April 18. Dr. Bernard Wolff, Atlanta, the secretary, has sent out blanks to all the physicians of the state. To these about 400 replies had been received which show that there have come under the observation of these physicians in the last year 1,555 cases of tuberculosis, and that about 50 per cent. of the cases have proved fatal. There have been recoveries in about 9 per cent. of the cases. It is estimated that there are about 10,000 cases of tuberculosis in the state.

### ILLINOIS.

**Personal.**—Drs. Roy F. Rogers, Shelbyville, and Emil Ries, Chicago, have gone to Europe.

**Change in Examination Date.**—The examination for internes of the Illinois Charitable Eye and Ear Infirmary, Chicago, will be held May 8 and 9, at 2 p. m., instead of May 3 and 4.

**Society Elections.**—Whiteside County Medical Society, at its meeting in Sterling, April 12, elected the following officers: Dr. Frank Anthony, Sterling, president; Dr. Charles A. Griswold, Fulton, vice-president; Dr. Clarence M. Frye, Rock Falls, secretary, and treasurer, Dr. John F. Keefer, Sterling.——At its fifth anniversary meeting, held April 20, Jo Daviess County Medical Society elected the following officers: President, Dr. Alfonso C. Czibulka, Warren; vice-president, Dr. Thomas J. Stafford, Stockton; secretary and treasurer, Dr. Domer G. Smith, Elizabeth, and censors, Drs. Hugh F. Gunn, Galena, H. B. Gratiot and Charles E. Wright, Scales Mound.

**Legislative News.**—Senate bill No. 311, the osteopathic measure described in the last issue of The Journal, passed the senate April 20 by a majority of one. The bill was reported to the house April 21, and a motion was made that it be advanced to second reading without reference to a committee, but through the efforts of Representative Smejkal this was lost. The bill was ordered to a first reading, but it had not been read up to April 25. After the first reading the bill will be referred to a committee. The optometry bill (Senate No. 237), and the osteopathic house bills (Nos. 228 and 229), are still in the judiciary committee of the house. The antivivisection bill (Senate No. 271) is in the license committee of the house. The senate bills, unpassed (Nos. 169 and 292), are still on third reading in the senate. The general assembly will adjourn early in May. The representatives of the medical profession in Springfield are hopeful that none of the osteopathic optometry or antivivisection bills now pending will find a place on the statutes of 1905.

### Chicago.

**The Week's Mortality.**—During the week ended April 22, 558 deaths occurred, 10 more than for the preceding week, but 85 less than for the corresponding period of 1904. Consumption caused 78 deaths; pneumonia, 72; heart diseases, 45; nephritis, 40; cancer, 32; violence, 28; bronchitis, 25; measles, 13; diphtheria, 8; whooping cough, 8; scarlet fever, 3, and smallpox, 2.

**New Hospitals.**—The first spadeful of earth in the excavation for the new Michael Reese Hospital was turned April 21, by Isaac Greensfelder, who performed the same office when the original building was commenced, a quarter of a century ago. The new hospital will cost $475,000.——Plans have been prepared for the new Swedish-American Hospital to be erected at Green and Sixtieth Streets at a cost of $100,000.

**Consumption Again Leads.**—After a briefer term than usual, pneumonia again yields to consumption as the principal cause of death. During the week there were but 72 deaths reported from the former and 78 from the latter disease. Between Nov. 1, 1904, and April 22, a total of 2,489 deaths were reported from pneumonia and 1,583 from consumption—these figures showing 556 fewer pneumonia and 75 more consumption deaths than for the previous corresponding pneumonia season, when the totals were 3,045 pneumonia and 1,513 consumptive deaths. The decrease of pneumonia has been the chief factor in the reduced general mortality rate of this period. During the 175 days ended April 23, 1904, there were 14,741 deaths from all causes reported; during the corresponding period ended April 22, 1905, there have been 13,387 deaths from all causes reported—or 1,454 fewer, of which number 556 were of the pneumonia deaths.

## KANSAS.

**Personal.**—Dr. William S. Lindsay, Topeka, has been elected dean of the Kansas Medical College; Dr. William E. McVey, Topeka, has been elected secretary of the college, vice Dr. Robert S. Magee, Topeka, resigned.

**Commencement.**—The fifteenth annual commencement exercises of the Kansas Medical College, Topeka, were held April 18, when eight graduates received diplomas from the president of Washburn University, Rev. Norman Plass, D.D. The faculty address was delivered by Dr. William F. Bowen.

**Communicable Diseases.**—During March 137 cases of tuberculosis were reported in the state, and 86 deaths; 166 cases of scarlet fever, with 9 deaths; 1,123 cases of smallpox, with *5 deaths; 63 cases of diphtheria, with 6 deaths, and 97 cases* of typhoid fever, 75 of which were in Kansas City, with 14 deaths.

**Fraud Order Issued.**—The postmaster general has directed the issue of a fraud order against the Physicians' Protective Association and the United States Protective Association of Kansas City, Mo., and Coffeyville, Kan., for conducting a fraudulent business. The concerns are identical and advertise as "sure collectors" of old accounts due physicians.

**Increase in Epidemic Disease.**—The reports received for March indicate an increase of all epidemic contagious diseases, *particularly smallpox*, and the State Board of Health urges that disinfection of all infected places and things be thorough and complete, that the epidemic may be controlled and not break out again on the arrival of cold weather next fall.

## MARYLAND.

**Will Maintain Hospital.**—The Washington County commissioners have agreed to levy $2,000 annually in perpetuity for the maintenance of a hospital at Hagerstown.

**Endows Room for Poor Male Patients.**—Mrs. James Wallace has offered to equip a room in the proposed Washington County Hospital and endow it for poor male patients.

**Smallpox in Hagerstown.**—Smallpox has appeared in six families in Hagerstown. The houses have been closely quarantined, with guards to watch them day and night. Dr. Fulton, secretary of the State Board of Health, believes the disease was brought from Virginia by a cigar salesman.

### Baltimore.

**Personal.**—Dr. L. McLane Tiffany is at his summer home, Mount Custis, in Accomac Co., Va.——Dr. William H. Baltzell spent the Easter holidays in Jerusalem.——Dr. Mattie B. Ingold, a graduate of the Woman's Medical College and for seven years a medical missionary at Seoul, Korea, has returned to America on a visit.

**Physicians Approve Sewage Plan.**—As a result of a conference, a committee of medical men has sent out a strong appeal to the profession to assist in securing the passage of the sewerage loan on May 2. The paper is signed by Drs. Isaac E. Knison, John S. Fulton, William H. Welch, William Osler, Hugh H. Young and many others.

**Hospital Notes.**—There were 2.001 cases treated at St. Joseph's Hospital last year.——The Franklin Square Hospital, belonging to the Maryland Medical College, is undergoing reconstruction. A fourth story and also two large four-story wings will be added, making a building 84 by 100 feet. The capacity will be increased from 40 to 100 patients. About $30,000 will be expended.——The Board of Public Improvement has approved the city council ordinance appropriating $25,000 for the construction of a hospital for infectious diseases, to be located on the grounds of the city almshouse.

**Aims of Medical Inspection of Schools.**—Dr. R. Tunstall Taylor of the Hospital for Crippled and Deformed Children summarized the aims of public school inspection before the teachers' institute as follows:

> To detect infectious and contagious diseases and prevent epidemics in schools.
>
> To rectify, as far as possible, physical ailments in the children which cause frequent absence from school.
>
> To detect imperfect sight and hearing.
>
> To promote cleanliness.
>
> To note limping and call attention to detrimental habits in standing and walking.
>
> To detect the causes and aid the prevention and correction of spinal deformities.

**Diphtheria Statistics.**—During November and December, 1904, the weekly cases of diphtheria reported to the Bureau of Health were considerably in excess of those of the preceding *months and also of the same months of the two preceding* years. This led the authorities to believe that in some quarters the condition was unusual and presaged an alarming epidemic. Comparative studies of the winters 1902 and 1903, 1903 and 1904, and 1904 and 1905 were made. The results of these studies show that for the winter of 1902-03, during the four months of November, December, January and February, there were reported 798 cases, with 127 deaths, a mortality of 16 per cent. During the same months of the following winter, 1903-04, there were reported 1,254 cases, with 204 deaths, a mortality of 16.3 per cent., while for the same four months of the present winter there were reported 1,517 cases, and 193 deaths, equivalent to a mortality of 12.7. While the number of cases for the four months of this winter was 21 per cent. greater than that of the corresponding period of last year and 90 per cent. greater than the same period in 1902-03, the number of deaths this year was 5 per cent. less than in last year, and only 52 per cent. greater than that recorded for 1902-03, notwithstanding the fact that the number of cases was almost 100 per cent. greater than in that winter. From 1902-03 to 1903-04 the increase of cases was 67 per cent. and that of deaths 61 per cent., so that a fair parallel between the two increases existed, but from 1903-04 to 1904-05 the increase of cases was 21 per cent., while the deaths diminished 5 per cent. The records of the Municipal Hospital for the same period exhibited a fair degree of correspondence with the foregoing figures for the city as a whole, as shown by the following:

| Nov. 1 to March 1. | Cases admitted. | Deaths. | Mortality, per cent. |
|---|---|---|---|
| 1902-03 | 190 | 36 | 18.9 |
| 1903-04 | 276 | 62 | 22.5 |
| 1904-05 | 357 | 46 | 12.9 |

No single satisfactory reason is given for this. It may be due to several causes. The disease this year may have been of a milder type than usual, a deviation not unknown to epidemiologists, and a condition that is most favorable to its wider dissemination, for mild cases rarely receive the care given to severe ones, or the care warranted by their true nature. The use of antitoxin, both as a prophylactic and therapeutic agent, is growing in favor, as is shown by the following report of the antitoxin dispensed by the Health Bureau:

| | Nov. | Dec. | Jan. | Feb. | |
|---|---|---|---|---|---|
| 1902-03 | 324 | 433 | 319 | 319 | Total—1,395 doses |
| 1903-04 | 605 | 1,081 | 508 | 731 | Total—2,925 doses |
| 1904-05 | 1,444 | 1,990 | 1,676 | 961 | Total—6,071 doses |

It has also been shown that careful bacteriologic examinations of inflammatory conditions of the throat show many apparently benign conditions to be etiologically of a serious nature, and the careful work of the school instructors has resulted in the discovery of a number of mild cases of diphtheria that would otherwise have been unrecognized. Whatever the explanation may be, it is gratifying to know that there have been many more cases during the four winter months of this year than in the corresponding period of the preceding two years, but that the death rate is almost 25 per cent. less than those recorded for other years.

## MASSACHUSETTS.

**Food Adulteration Prosecutions.**—Besides the usual number of prosecutions for milk adulteration, there have been detected and fined recently in Boston several oyster dealers, who were using borax and boric acid as preservatives.

**Would Abate Spitting Nuisance.**—The United Improvement Association of Boston is seeking to assist in abating the nuisance of spitting in public places. The members feel that the present fine of $100 is too high and are urging that a fine of $5 or $3 would be more efficient, as there would be more prosecutions.

**Boston Disease and Deaths.**—For the 14 weeks ended April 22 there were 3,159 deaths reported in Boston, as against 3,150 in the corresponding period last year. There were reported 434 cases of diphtheria, with 54 deaths; 396 of scarlet fever, with 18 deaths; 135 of typhoid fever, with 22 deaths; 132 of measles, with 6 deaths; 645 of tuberculosis, with 354 deaths, and 6 of smallpox. There were 554 deaths from pneumonia, 6 from whooping cough, 355 from heart disease, 92 from bronchitis, and 42 from marasmus. Of the decedents 485 were under 1 year, 697 under 5 years and 895 over 60 years.

**Personal.**—Dr. William G. MacDonald has been appointed medical examiner of Suffolk County to succeed Dr. Frank W. Draper, resigned.——Mayor Collins has reappointed Dr. Samuel H. Durgin a member of the Boston Board of Health.——After 20 years of service Dr. Edward B. Lane has resigned as superintendent of the Boston Insane Hospital. His successor is Dr. William Noyes, who has been assistant superintendent and in charge of Pierce Farm.——Dr. George E. Maxfield has been appointed first assistant in the men's department, and Dr. Franxis X. Corr assistant physician in the women's department.

## MISSOURI.

**St. Louis Graduates.**—St. Louis College of Physicians and Surgeons held its annual commencement exercises April 14, when a class of 29 was graduated.

**Neurologists Form Society.**—A number of St. Louis physicians met February 27 and organized the St. Louis Neurological Society. Dr. Frank R. Fry was elected president, and Dr. Given Campbell, Jr., secretary.

**St. Louis Hospital Improvements.**—The new City Hospital pavilions are nearly ready for occupancy.——The new St. Ann's Infirmary, on Union and Bell Avenues, is nearly ready for occupancy.——Of the $100,000 required to build two new wings to the Jewish Hospital, $80,000 has been received and work will begin at once.

**Personal.**—Dr. Thomas E. Graham, Albany, was appointed attending physician at State Hospital for the Insane No. 2, St. Joseph, vice Dr. William L. Whittington, St. Joseph.——Dr. St. Elmo Sanders has been confirmed by the Kansas City common council as city physician.——Dr. Daniel McSwegan has returned from Europe and has located at Excelsior Springs.——Dr. Horace M. Julian, St. Louis, was injured in a runaway accident, April 13.

**St. Joseph Commencements.**—Ensworth Medical College graduated a class of 22 at its twenty-eighth annual commencement exercises, held April 20. The address was delivered by President Green of William Jewell College, Liberty, Mo.——class of 17 received diplomas at the commencement exercises of Central Medical College, held April 17. The faculty address was given by Dr. Arthur B. McGlothlan, and Dr. Thompson E. Potter, president of the college, conferred the degrees.

## NEW YORK.

**Will Extend Term.**—The faculty of the medical department of the University of Buffalo has resolved to lengthen the annual term from seven to eight months.

**No Cause of Action.**—In the case of Mary Smith vs. Dr. Martin Cavana, Oneida, in which malpractice was alleged and $3,000 damages asked, the jury found for the defendant with a verdict of "no cause of action."

**Legislative News.**—The assembly recommitted the three bills at the request of the State Health Bureau. They are very drastic, as they compel all plans for water supplies, as well as sewage systems of cities and villages, except New York City, to be submitted to the Health Bureau for its approval.

**Did Not Report Contagious Disease.**—Dr. Francis M. Rich, Buffalo, was fined $10 and $2 costs for violating the city ordinance requiring physicians to report to the Health Department all cases of contagious diseases under their care. Dr. Rich claimed that he had twice called up the Health Department to make the report, but could get no answer.

**Hospital Gifts.**—An anonymous benefactor has given $10.0 to the Titusville Hospital *endowment fund.*——Mrs. Emily H. Grummond has given a children's ward to the Binghamton City Hospital, as a memorial to her late husband.——Remington Vernam has donated five lots at Arverne, L. I., as a site for a proposed emergency hospital.——The Cohoes Hospital fair netted $2,230.17 for the institution.

**Health Board Changes.**—Dr. Sylvester C. Clemans, city physician of Gloversville, resigned.——Dr. Charles V. Patchin appointed to Dansville village and town board of health.——Dr. Roy B. Dudley appointed health officer of Clinton.——Dr. Christian C. Vedder appointed health officer of St. Johnsville.——Dr. Frank W. Green appointed health physician of Sinclairville, vice Dr. George F. Smith, resigned.——Dr. Charles W. Shaver appointed health officer of Camden.——Dr. Andrew J. Martin appointed health officer of North Tonawanda.——Dr. Jeremiah H. Sullivan appointed health officer and registrar of Charlotte.

**Personal.**—Dr. Louis A. Weigel, Rochester, who was severely burned by continuous exposure to *x*-rays, has returned from Jamaica and will resume practice. He suffered amputation of the right hand and of part of the left hand.——Dr. Henry C. Baum, Syracuse, assistant surgeon of the Third Battalion, N. G., N. Y., has applied for retirement after continuous service of twenty-five years. He has been succeeded by Dr. Reeve B. Howland, Elmira, first lieutenant and assistant surgeon of the Thirtieth Separate Company, N. G., N. Y.——Dr. William H. Marcy has been chosen surgeon of the Buffalo fire department as the result of a civil service examination. The position is for life and the salary is $1,500 per year.

### New York City.

**Personal.**—Dr. Antonio Fanoni, of New York, has been made a knight (Cavaliere) of the Italian Order of the Crown.

**Contagious Diseases.**—There were reported to the Sanitary Bureau for the week ended April 15, 473 cases of measles, with 9 deaths; 372 cases of tuberculosis, with 175 deaths; 325 cases of diphtheria, with 31 deaths; 260 cases of scarlet fever, with 11 deaths; 182 cases of cerebrospinal meningitis, with 117 deaths; 16 cases of typhoid fever, with 6 deaths; 180 cases of chicken-pox, and 2 cases of smallpox, with 1 death.

**Hospital Notes.**—A slight fire occurred in the Metropolitan Hospital, which was controlled without much difficulty or serious loss.——A new emergency hospital has been opened at Coney Island, which is under the charge of Dr. John J. Dooling, Brooklyn.——Plans have been filed with the Building Bureau for the enlargement of the New Amsterdam Eye and Ear Hospital by annexation of the adjacent building.

**A Lower Death Rate.**—The figures given out by the Health Board for the week ended April 20 show a death rate of 4.06 points lower than for the corresponding week of last year. There were 248 deaths from pneumonia, while for the corresponding week of 1904 there were 409 deaths from this cause. In the week ended April 8 there were 232 deaths from pneumonia, while in the corresponding week of 1904 there were 429 deaths.

**New Training Schools.**—Through the efforts of Dr. Abraham Mayer a new training school for nurses will be established in connection with the Lebanon Hospital. The building will accommodate about 75 nurses and will cost $50,000.——A training school for nurses has been started at the new French Hospital. Applicants are not required to speak French, but will receive instruction in the language as a part of their course. The hospital has a capacity of about 130 beds, including private rooms.

**Hospital Fund Divided.**—The distribution of the hospital fund, after deducting $10,000 for gifts to particular hospitals and $6,000 to meet past expenses, has been made by the committee of the Hospital Saturday and Sunday Association among 38 institutions. This fund amounted to about $76,00 and among the chief beneficiaries were: Montefiore Home and Hospital, $7,600; Mt. Sinai Hospital, $5,059; St. Luke's Hospital, $4,370; German Hospital, $4,397; Roosevelt Hospital, $3,941; Nursery and Children's Hospital, $3,879; Lebanon Hospital, $3,682; Lincoln Hospital and Home, $3,654; Ruptured and Crippled Hospital, $3,569, and Post-Graduate Hospital, $3,000.

**Cerebrospinal Meningitis.**—The death rate from this disease now averages about 15 a day. The number of deaths from January 1 to the present time is 1,006, while for the whole of last year it was only 1,411. The commission appointed to investigate the spread of this disease, while it does not take on itself to advise the Board of Health, believes that the communicability of cerebrospinal meningitis has been sufficiently well established to warrant isolation. Henceforth such disease must be reported to the Health Department. At the regular meeting of the Academy of Medicine, April 20, Dr. George L. Peabody read a paper on the treatment of cerebrospinal meningitis by diphtheria antitoxin, and the statement was emphatically made that this treatment was good for nothing. Gouverneur Hospital is the only hospital of importance in New York City that favors its continuance. Dr. Peabody's opinion was heartily indorsed by Drs. Francis P. Kinnicutt, Presbyterian Hospital; Henry P. Loomis, Bellevue Hospital; William K. Draper, Bellevue Hospital; Richard Van Santvoord, Harlem Hospital, and William M. Leszynsky, Lebanon Hospital.

## PENNSYLVANIA.

**Personal.**—Dr. William B. Ulrich, ex-president of the state medical society, is seriously ill at his home in Chester, with influenza.

**Memorial to Dr. Drown.**—Lehigh University, it is said, proposes to erect a memorial hall to cost $80,000, to the memory of the late president of the university, Dr. Thomas Messenger Drown, who died last year.

**Health Bill Approved.**—The bill granted to those having charge of the public health and sanitation in Philadelphia, the power to make rules and regulations governing the care and control of persons suffering from cholera, typhoid fever, yellow fever, typhus fever, scarlet fever, relapsing fever, smallpox, chicken pox, diphtheria, diphtheritic croup, membranous croup, cerebrospinal meningitis, measles, mumps, whooping cough, tuberculosis, pneumonia, erysipelas, puerperal fever, plague, trachoma, leprosy, tetanus, glanders, hydrophobia and anthrax, was approved by the governor, April 20.

**Right to Operate Without Consent.**—The suit of $20,000 against Dr. Daniel P. Maddux of the Chester Hospital resulted in the failure of the jury to agree after 24 hours' deliberation. The plaintiff entered suit after the death of his 15-year-old daughter, who died at the Crozier Hospital, Chester, 15 hours after she had been operated on for appendicitis by Dr. Maddux. The plaintiff contended that the operation had been performed against his express wishes. The defense produced evidence showing that the case was one of life or death, and that the operator was justified in taking the chances he did, in the endeavor to save the girl's life. It is said that the jury stood five for the plaintiff and seven for the defendant.

**Hospital Examinations.**—The Allegheny General Hospital will hold competitive examinations for resident physicians in the civil service rooms, City Hall, Philadelphia, and also in the Y. M. C. A. rooms, Pittsburg, Pa., April 29, at 9 a. m.——The City Hospital, Wilkesbarre, will conduct its examinations for resident physicians at the office of the secretary, Dr. Lewis H. Taylor, April 29.——The Hamot Hospital, Erie, will hold its examinations for internes May 15. Applications by letter with two letters of recommendation should be sent to Dr. F. A. Goletz, Erie, Pa.——The Western Pennsylvania Hospital, Pittsburg, will hold its examinations at the hospital April 29.——The Harrisburg Hospital has arranged to examine applicants for resident physicians May 29.

**Baby Farm Bill Vetoed.**—The bill providing that any person who shall in cities of the first class, take into his custody for hire or reward, a child or children under the age of 3 years without having first obtained a license in writing from the Department of Public Health and Charities, shall be guilty of a misdemeanor punishable with imprisonment for one year. This bill the governor vetoed. He says that no doubt the bill has a worthy purpose which it is intended to serve, but it is not clearly defined. The terms in which the bill is drawn will prevent a mother from entrusting a child to a nurse or from sending it out to the park with a servant. The custody of the child may be given by the parents to other persons for many purposes besides that which is known in popular parlance as "baby farming."

### Philadelphia.

**Memorial to Dr. Craig.**—In response to the universal sympathy caused by the death of Dr. A. B. Craig, a committee has been appointed to receive subscriptions for a memorial. It is proposed to erect a suitable tablet to his memory in the new Jefferson Hospital.

**Personal.**—Dr. George Y. MacCracken sustained a fracture of his right patella April 18. He had just recovered from a similar injury due to a fall on the ice nine weeks before.——Dr. Robert N. Willson, instructor in physical diagnosis at the University of Pennsylvania, has been elected a lecturer on physical hygiene at Union Seminary, New York.

**Research Students.**—A department of research is in process of development in Jefferson Medical College. The organization is under the supervision of Dr. W. M. Late Coplin, professor of pathology. The plan of organization contemplates the appointment of a small number of selected students who will be assigned special advanced work in the laboratories, clinics and wards of the hospital during the summer vacation. The appointees will be known as special research students, and for the present year will not exceed six or eight in number. It is hoped that this number may be increased after the completion of the new hospital. The selection of the men will be based on college and laboratory standing, availability and preliminary training.

**Health Report.**—The total number of deaths reported for the week reached 415. This is 62 less than the number reported last week, and 140 less than the number reported for the corresponding period of last year. There is also a decrease in the number of contagious disease cases reported. Typhoid fever, however, is still prevalent, though the malady is of a mild type, and the mortality therefrom comparatively low. The principal causes of death were as follows: Typhoid fever, 19; tuberculosis, 60; cancer, 15; paralysis, 11; heart disease, 54; acute respiratory disease, 48; enteritis, 7; appendicitis, 8, and Bright's disease, 45. The total number of contagious disease cases reported aggregated 258, with 22 deaths, as compared with 246 cases and 35 deaths for the preceding week.

**Need Asylum for Criminal Insane.**—At the meeting of the Medical Jurisprudence Society Dr. H. Hendrie Lloyd read a paper on "The Need of an Asylum for the Criminal Insane." He argued that such unfortunates require special treatment, and should not be confounded with the insane criminal class. In the former class he said insanity is the chief factor, while in the latter criminality is the chief factor. He argued that the state might profitably differentiate between innocent insane, the criminal insane, and the insane criminal, and provide separate asylums for each class. The verdict of advanced thought is that the criminal insane and insane convicts should not be permitted to associate with the innocent insane, neither should the former class be treated in the same asylum. The insane convict requires and should be given the same prison discipline as that of the penitentiaries. The object of the Pennsylvania law regarding the insane is in the main just and humane. The records show that there are 400 criminal insane in asylums, almshouses and penitentiaries throughout the state, or, in other words, a number sufficient to warrant a separate asylum being established for their care and treatment. The following officers were elected: President, Dr. Henry W. Cattell; vice-presidents, Drs. Adolph Eicholz and Dr. W. M. Late Coplin; secretary, Dr. Henry Leffmann, and treasurer, Dr. Paschal H. Coggins.

## GENERAL.

**American Gynecological Society.**—A change of date has been made, so that this body will hold its annual meeting May 25-27, instead of two days previously.

**International Association of Climatologists.**—This body will hold its annual meeting in Portland, July 11-14. The secretary is Mr. Charles H. Peck, 259 William Street, New York City.

**Plague in the Philippines.**—According to the *Public Health Reports*, sporadic cases of plague are found in Manila on an average of one a week. One case was reported recently from Cebu.

**Warning Against a Collector.**—The Journal has again received complaints that Frank B. Kennett, against whom its readers were warned Dec. 24, 1904, page 1979, is again endeavoring to obtain subscriptions in Kansas, claiming to be an authorized agent. This individual is not authorized to represent The Journal, nor to collect money, and we once more give warning not to pay money on account of The Journal or of the American Medical Association to any one who can not show proper credentials.

**Memorial to Finsen.**—The committee authorized to receive subscriptions in America for the Niels Finsen memorial fund desires to announce that the collections will be closed in this country by June 1, 1905. Those desirous of contributing to a fitting memorial to the late distinguished Norwegian scientist may send their contributions to Dr. James Nevins Hyde, 100 State Street, Chicago. The nature of the memorial has not yet been decided, but it is fair to infer from the custom of the Danish people with regard to others of its great men that a monument will perhaps be erected in Copenhagen.

## CANADA.

**Personal.**—Dr. F. S. Nicholson, surgeon-major Nebraska National Guard, is visiting in Toronto. Dr. Nicholson is a graduate of Trinity University, and has just completed a post-graduate course in the Army Medical School, Washington, D. C.

**Postgraduate Work at McGill.**—In the tenth regular course of postgraduate medical instruction to be given at McGill University during June, the faculty will depart somewhat from previous lines and will make each branch optional, attaching thereto a special fee.

**The Samaritan Women's Hospital, Montreal.**—At the eleventh annual meeting in Montreal last week, the surgeon-in-chief, Dr. Lapthorn Smith, presented the annual report. Of the 146 women admitted during 1904, 28 received medical treatment and the remainder surgical treatment. There were fifty major operations, with but one death.

**Ontario Statistics for March.**—The deaths throughout the province of Ontario during March numbered 2,417, making a mortality of 14.9 per 1,000 of the population. There is a marked reduction in smallpox, scarlet fever and diphtheria. There were 16 cases of smallpox to 48 last year; scarlet fever, 168 cases to 234 last year; diphtheria, 223 to 267 for the same month during 1904. Tuberculosis caused 200 deaths the same as in March, 1904.

**Medical Matters in the Militia.**—Authority has been granted for medical attendance to warrant officers, non-commissioned officers and men of the headquarters command and district staffs, ordnance stores corps and their families at public expense, in Nos. 4, 5, 8 and 12 military districts, in which there are no permanent army medical corps, the fees for such to be $1 per visit per diem, and fifty cents for the second and each subsequent visit paid on any one day.

**Southwestern Manitoba Physicians Meet.**—The annual convention of the Southwestern Medical Association of Manitoba, held in Winnipeg, April 7, was representative of all sections of that province. Dr. McKenty, Gretna, read a paper on "Tubercular Pleurisy"; Dr. J. O. Todd, Winnipeg, and Dr. Montgomery, of the General Hospital, Winnipeg, gave the hospital statistics for the past year and the treatment pursued in the cases of typhoid fever admitted into that institution.

**Tuberculosis Disinfection in Montreal.**—The Tuberculosis League of Montreal has decided to bring to the notice of the citizens the advisability of disinfection of houses after removal; and will advise prospective tenants to ascertain that the by-law governing this has been complied with. This by-law provides that all houses previously occupied by consumptives shall be disinfected by the proprietors. The league will make arrangements whereby this may be done at a nominal cost.

**Dr. Wilfrid Grenfell in Toronto.**—For thirteen years Dr. Wilfrid T. Grenfell, a young English medical man, has devoted his life-work to the fisherfolk of Newfoundland and Labrador, his constituency covering over 2,000 miles of coast. At the present time Dr. Grenfell is in Toronto on his annual visit to the United States and Canada, interesting philanthropists in his mission. Dr. Grenfell gives an interesting account of the work done in the three hospitals he has established along the coast and of the hospital-ship donated for the work by Lord Strathcona. The hospitals are wooden structures, and an illustration that they are not of the modern variety is the fact that one of the patients had an ear frozen while lying in bed last winter. Every year about 2,000 people are treated by Dr. Grenfell and his colleagues. This year two specialists have promised to sail with him and to assist him at his work.

## FOREIGN.

**Search for the Tuberculous.**—The city of Strasburg, Germany, is discussing the establishment of a central office to which physicians are to report all cases of tuberculosis among their patients. The central office will then search out the patients and see that they have proper food, etc., and sanatorium treatment. The expense is to be shared by the city and the state sickness insurance company.

**Declaration of Cerebrospinal Meningitis.**—Our Berlin exchanges are publishing a notice from the president of police asking physicians to notify the authorities of every case which even suggests the possibility of its being epidemic cerebrospinal meningitis. On account of the epidemic in Silesia and the danger of its importation into Berlin, physicians are urged to co-operate with the authorities in this way, although the official regulations call for declaration of only pronounced cases of the disease.

**Prize for "Guide to Care of Infants."**—A German public health society offers three prizes of about $37.50, $25 and $12.50 for an article suitable to be printed in pamphlet form for distribution among young mothers. It must be short, easily understood by the least intelligent mother or nurse, and the provisions must be the simplest possible. The text must not be more than 1,440 words, or 160 lines of nine words each. Articles to compete must be sent in anonymously, and be received before June 15. Address Prof. Dr. Lent, Cologne, Germany. The competition is open to the world and articles already published may be entered.

**Accessory Sciences in the Medical Curriculum.**—The disturbance in the Paris medical school, mentioned in these columns last week, is mainly due to the strictness of the examinations in physics, chemistry and natural history. The students regard these studies as secondary and begrudge the time spent over them, which they think should be devoted to the medical sciences proper. Failure to know the coefficient of the expansion of glass or Kékulé's hexagonal formula is enough to trip the fledgling physician and to set him back. The students are clamoring for a revision of the medical course of study in this respect. The French medical students are also facing much severer regulations after this year in regard to their term of compulsory military service. Hitherto they have profited by certain exemptions, but they will soon have to serve the same as all other young men, for two consecutive years.

## LONDON LETTER.

### The Protection of an Upright Life and Methodical Habits.

A recent case in the divorce court shows the dangers to which physicians are exposed from unscrupulous persons and also the value of keeping a complete record of all professional work. In this case the husband sought a divorce on the grounds of the adultery of his wife with the family physician. He alleged that frequent notes had passed from his wife to the physician and that they were seen together under circumstances of grave suspicion, and finally that his wife had confessed to him. An almost damning circumstance was the fact that the wife entered the witness-box and swore that she had committed adultery with the physician. Fortunately, it was shown that the husband had seduced the wife before marriage, and the judge pointed out that implicit reliance could not, therefore, be placed on her evidence. Still more fortunately, the physician was a methodical business man and kept a private diary as well as his professional day-book, from which he was able to show his movements on the days that the adultery was alleged. The records showed that these were strictly professional visits and his partner and dispenser proved that the notes sent by the wife were only requests for his attendance, and to which the partner responded when the defendant was unable.

### The Teaching of Hygiene and Temperance.

A conference of physicians has been held to consider the teaching of hygiene and temperance. Sir William Broadbent, who presided, said that the object was to carry a step further the movement for the promotion of the teaching of hygiene and temperance in the elementary schools. It was initiated by a memorial to the government signed by 15,000 physicians. Sir Victor Horsley reported to the conference the continued success of the action taken by the profession. The Board of Education was meeting them. The importance of teaching the value of temperance to children was supported by Dr. Collier, president of the British Medical Association; Dr. F. W. Mott, Professor Sims Woodhead and Dr. Symes Thompson.

### A Prehistoric Vesical Calculus.

At the Pathological Society Mr. S. G. Shattuck exhibited a specimen of much historical interest which proved the existence of urinary calculus at a very remote period. It was found by Prof. Elliot Smith in one of the graves of the prehistoric cemetery at El Amrah, in upper Egypt, and was presented by him to the museum of the College of Surgeons. The presence of a stone vase showed that the grave antedated by many generations the time of Menes, the first dynastic king (B. C. 4800). The age of the calculus was thus at least 7,000 years. It was found between the innominate bones of a boy, aged about 16 years, and it consisted of compact uric acid, which gave the usual chemical reactions, thickly encrusted with phosphates. Microscopic section of the uric acid "body" showed that it consisted, as usual, of coarse, pale yellow crystals radially disposed in columns. After solution of the uric acid with caustic potash a transparent matrix was revealed as under normal circumstances. The complete absence of calcium oxalate was noteworthy. In India 70 per cent. of the urinary calculi consist of this substance, which must be ascribed largely to the use of vegetable food. In the later dynasties the food of the ancient Egyptians was chiefly vegetable. It was, therefore, interesting to notice that the recent investigations on the prehistoric people showed that they were hunters; this was shown by the discovery of hunting lances of flint in the prehistoric graves, in which clay models of kine had also been found. Immensely more interesting would the calculus have proved had it been possible to associate it with bilharziosis, which is commonly held to explain the great frequency of calculus in modern Egypt, but this after considerable trouble Shattuck was unable to do. Had the chitinous capsules of the ova been present they would certainly have been preserved and would have been discoverable. The occurrence of bilharziosis in the prehistoric age is, therefore, not yet shown.

### Physicians' Bravery.

Two conspicuous examples of bravery of physicians in circumstances of great danger have lately been furnished. In both cases the heroes were Irishmen. One case occurred off the coast of Donegal. During the height of a furious gale a signal was made from the island of Innisboffin that a patient was dangerously ill. Without a moment's hesitation Dr. McDonald of Tory went down to the shore to find volunteers to row him over. The only possible conveyance was an open boat. With four plucky fishermen to man it, the doctor started. The wind was dead in their teeth, the rain descended in torrents, and a fearful sea was running high, but gradually the little boat worked its way across and the patient was attended to. On the return journey the sea was even worse and the boat, in spite of constant bailing, was soon half full of water. In this plight the men struggled for a while until a squall struck the boat and overturned it. The crew managed to cling to the keel of the boat, but the doctor was swept away by the waves and would have been drowned had not one of the men swam to him and given him an oar to cling to. Then another boat put out from the shore to give help to the men in the water. It took about an hour to rescue them. The doctor was picked up almost exhausted. In the other case the hero was Surgeon-Captain Mackenzie, who, at the annual festival of the Irish Medical Schools and Graduates' Association, was presented with the Arnot memorial medal for saving life at sea. On his way home from Mauritius, on the Ionian Sea, one of the crew fell overboard, and though the sea was running high and a strong wind was blowing, Captain Mackenzie dived, fully dressed, over the ship's side and, securing two lifebelts which were thrown to him, lashed the drowning sailor to one and retained the other himself. The order was given to stop the vessel, but owing to its speed and to the roughness of the sea, the men in the water were lost sight of, and it was forty minutes before they were taken on board in an exhausted condition.

### The Indian Pasteur Institute.

The director, Lieut.-Col. Semple, has issued his fourth annual report, for the year ending August, 1904. There has been a steady increase in the number of patients treated for hydrophobia, the figures for the years 1901-04 being respectively 321, 543, 584, 612. The results also show a slight improvement—0.81 per cent. of failures against 1.03. In the cases of Europeans the treatment was uniformly successful. In Paris since 1886 the percentage of failures is 0.3. Among the Indian natives the rate works out 1.56 per cent. But it must be remembered that the circumstances are unfavorable, the bites in general are of greater severity and more frequently on naked or thinly-clad parts; there is greater delay in commencing treatment, the wounds are often insufficiently cauterized, neglected and suppurating, and finally the patients can not often afford the generous regimen desirable throughout the twenty days of treatment. In natives the average interval from infection to the first inoculation was 11.6 days; in Europeans, 7.2 days. For safety not more than three days should elapse after a bite on the head or face, and not more than five in any case. Intensive methods are used when treatment commences after the fifth day. In three cases hydrophobia supervened during the course of inoculations, and in two others within the fourteen days limit. These fatalities are not included in the statistics of failures. As in other institutes, the difficulty is in enforcing public appreciation of the paramount importance of early treatment. All but one of the fatal cases came late. Some years must elapse before full confidence is established among the native population. With the Europeans it should be otherwise, yet the director remarks: "It is not unusual for railway, postal and telegraph employes and native policemen to waste days and sometimes weeks in obtaining official sanction before setting out for treatment, or to waste an equal period in hospital waiting for their wounds to heal." The value of antirabic serum yet remains uncertain, for the routine treatment was followed in every case. Other work of the institute was the preparation of large quantities of antitetanic and antidiphtheritic serums. The work of Captain Lamb, the assistant director, on snake venoms is well known. In addition to anticobra serum two other preparations have been made—one for the venom of the *Daboia russellii* and the other for a mixture of this and cobra venom. But these serums have not yet been issued.

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## Pharmacology

### Cleveland Society Endorses Plan.

The Cleveland Academy of Medicine passed the following resolutions April 21:

WHEREAS, The Academy of Medicine of Cleveland realizes the many evils connected with indiscriminate use of proprietary medicines by the medical profession; and,

WHEREAS, It believes that an authoritative body, appointed by the American Medical Association, is best adapted to work out a solution of this intricate problem; therefore be it

*Resolved*, That it endorses the creation of the Council of Pharmacy and Chemistry by the Trustees of the American Medical Association; that it has the fullest confidence in the personnel of this council; that it approves the general plans and the ten rules governing the admission of articles already formulated by the council; and that it hereby pledges to this movement its support and its hearty co-operation.

### Supervision of Proprietary Articles.

Shall a physician be content to trust to the manufacturer of proprietary remedies for his knowledge of these preparations, or shall he refrain from using them because of uncertainty concerning their ingredients?

The more logical plan appears to be to devise some method by which the physician may be assured of the identity and uniformity in strength and product of medicinal articles that he may be able to use with confidence certain articles and may be on his guard against such as do not conform to medical ethics. The great body of physicians in this country have organized for their mutual interest and protection along various lines, and their efforts are now beginning to bear fruit. Why should they not invoke the organization in the work of examining into all the medicines they employ, just as well as into the more limited number in the U. S. Pharmacopeia, which is under their direction and control?

This is the plan pursued now in nearly every department of activity in which the preservation and protection of human health and life is involved. All transportation machinery, for example, is most carefully supervised and its operation controlled by strict laws and rules, for without such regulation danger to life would be too great to be endured. Recently, for example, it has been shown that the breaking of rails to which many railroad wrecks are ascribed is due to the poor quality of rails furnished by the steel trusts. As soon as this fact is generally recognized, the railroad managers will at once improve the system of testing the rails so as to exclude all poor rails in the future. In the animal industry a most thorough supervision has been in operation for many years under local, state and Federal control for the protection of the public. On every hand are found organized efforts to protect and to preserve public health. Then why not in this matter of proprietary medicines? Is there any reason why special privileges should be accorded a medicine because it is proprietary? On the contrary, because such articles enjoy a certain protection, they should be required to comply with such demands as may be necessary to insure their safe and intelligent use. This is the view taken of this question by all reputable manufacturers who have the interest of the medical profession at heart.

### A Flattering Offer?

We have before us a circular containing testimonials from various members of our profession of certain proprietary preparations, and also a copy of a very attractive certificate of stock which contains the information that the bearer is the owner of stock, etc., in the Rebekeh Chemical Co. A blank application for stock accompanies the rest of the literature, and closes with the following interesting promise which is to be made by the doctor:

"In consideration thereof, I promise to prescribe Pulvis Bis. Talc. Compound (Gray's), also Kleko Tonic (Rebekeh Chemical Co.), in cases where indicated, to the extent as suggested by the by-laws of said Rebekeh Chemical Co., and trust you will acknowledge receipt of this promptly."

The circular tells us that the Rebekeh Chemical Co. has been incorporated "with a view to issuing a quantity of common stock . . . to those interested, and you may get as high as 25 per cent. dividends. However, at any rate, you are guaranteed dividends of from 5 to 10 per cent., it depending entirely on your individual efforts as to how much more you may get, as the *physician* holds the *balance of power*. . . . Write us at once, fill out the coupon in back of this booklet and mail the same to us so that we may record it, which means that you have begun to prescribe (Gray's) Bismuth Talcum Compound, and when you have done so to the extent of $20.00 worth, that is, caused your patients to have secured it through your nearest druggists or druggist, whichever the case may be, have these prescriptions preserved for you, and when you have prescribed the required amount, or $20.00 worth, have these prescriptions O.K.'d by the druggists who have filled them, send the same in to us for record, and we will issue you one full paid share valued at $10.00 par. We guarantee the same to draw anywhere from 5 to 10 per cent. per annum. . . . Now Kleko, the great German tonic This is a preparation that is practically new, having only been in existence about one year. It would be necessary for you to try a bottle of it in order to satisfy yourself as to its virtue. So that neither of us will be subject to any loss, send us 50c to cover the cost of packing. . . . There is nothing ever produced that has such marvelous results as Kleko in *anemic conditions.* Is a *specific for bronchial affection*, an expectorant, an emollient, no depressing effect whatever, palatable, strengthening, stimulating, contains no ingrediences that are injurious, thoroughly indicated in anemia, chlorosis, rachitis, neurasthenia and general blood degeneracy."

Here is another opportunity for him who plays at being a doctor, for him who is in practice for graft and for what he can get out of it, for him who has lost his self-respect and who *no longer* respects the interests of his patients. We have no doubt this flattering offer will be accepted by some doctors. It would be interesting to know just how many there are who have lost their self-respect sufficiently even to consider such an insulting proposition.

### A Good By-Law.

We quote the following from the constitution and by-laws of the Mississippi Medical and Surgical Association: "Sec. 4. Any physician who shall . . . enter into a collusive agreement with an apothecary to receive pecuniary compensation or patronage for sending his prescriptions to said apothecary, or who prescribes a remedy without knowing its composition, or who shall hereafter give a certificate in favor of a patent remedy or instrument, shall be disqualified from becoming or remaining a member."

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## FURTHER COMMENTS QUOTED.

We quote below some expressions of opinion from various publications which discuss the general subject of secret nostrums and the plan of the Council on Pharmacy and Chemistry:

The Apothecary (April): "The statement of the Council on Pharmacy and Chemistry of the American Medical Association, published below, is fraught with vital interest to both the medical and the pharmaceutical professions of this country, and is, we sincerely believe, the announcement of the beginning of a better order of things, when much that is unfair, and dishonest, and uncertain, and unethical in the practices of druggist, physician and manufacturer will be cleared away.

"Heaven knows we need a clearing up—a throwing out of rubbish—a sweeping down of cobwebs and dirt—a clearer defining of the true ethical and efficacious in medicine and pharmacy. In no other field has the faker found such encouragement. In no other profession has the element of competition so tarnished the true purpose of existence. Science and humanity still exist in great abundance, but through the widespread corrosion of greed and dishonesty the position of the humane man of science has become uncertain, anomalous.

"The American Medical Association is the proper founder of the work contemplated. The physicians—influenced largely by the manufacturers, whose purpose may or may not have been honest, and whose goods may or may not have been valuable—are largely responsible for the conditions which the A. M. A. now seeks to remedy. The adoption of therapeutic agents, the prescribing of medicines, is in their hands. The pharmacist was—and under their practices has become still more—a mere automatic purveyor of the material they designate for the cure of the sick. The pharmacist, we fear, was all too blind to the path along which he was being forced. The physician, indeed, did not realize the trend matters were taking. The impetus behind both was the manufacturer's desire to make money.

"Mind, we do not condemn the manufacturers as a whole. As a rule they were in—*regarded from a commercial view point*—an honest pursuit of wealth. Though handling professional articles and shaping professional destinies, they planned along up-to-date lines. And their less astute, unorganized—ah, there's where the fault lay—customers, the doctors and druggists, slipped along, too unconsciously, quite unwittingly, before them."

The New Idea. (*This periodical is published by Frederick Stearns & Co., and we presume that this editorial represents their views.*) April 15: "There are strong indications that the day of secrecy in medicine is dying and that ere long will dawn the era of open formulas. More and more frequently are bills, requiring publication of formulas, introduced in our state legislatures; and though these are doubtless often intended *merely as gentle hints that it is time to put* up more money, it is equally certain that many of them are brought forward in good faith, and therefore indicate clearly a trend of legislation. Consider also the recent action of a large proprietary house in announcing that hereafter the formulas of its preparations would be published on respective packages. Is not this significant in the highest degree?

"It is pretty well known that the American Medical Association is preparing to take a very decided stand relative to prescription proprietaries, by which those whose composition is not known, or if known in part, is stated in vague and ambiguous terms designed to mystify, shall no longer be admitted to the advertising columns of The Journal. The progressive commonwealth of New Zealand recently forbade the importation of all secret medicinal preparations, thus practically demanding publication of formulas; and though this order has been modified it has not been rescinded by any means, and the probability is that no great length of time will elapse until it is put in full force. Still other instances of almost equal importance might be cited if necessary.

"After all, why should the maker of any really meritorious secret medicine object to stating its exact composition? It is highly probable that its sale would be helped rather than hurt by such action. There are already well-known proprietary medicines of open composition which have a very extensive sale—in fact, may be said to be the most popular of their class. The commercial value of fast-selling secret medicines of real merit—and we must concede that there are such—lies not in the secret of their composition, but in the trademark rights of their owners. We shall be able to realize this more clearly perhaps if we consider two of the most valuable trademarks of the grocery business, sapolio and royal baking powder. While each of these is nominally secret in composition, it is likely that any soapmaker would have no difficulty in practically reproducing sapolio; and the exact composition of royal baking powder has been determined over and over by chemists. But as no one can sell his product under these names the monopoly in the business remains secure. Therefore it is the trademark and not the secret of manufacture that is valuable. There is no reason why it should not be equally true in medicine.

"The patent medicine manufacturer who is engaged in marketing a worthless or a dangerous preparation, however, may well look with alarm on the fast approaching day when the law shall put a stop to his nefarious business by requiring him to disclose the disgraceful secret that his 'catarrh cure' is a low-grade whisky, flavored with cubebs; or that his catarrh snuff or ointment is full of cocain; or that his soothing syrup contains a dangerous amount of morphin; and so through the whole list of 'patent' fakes. Such manufacturers have the same reason to dread publicity as do swindlers of any other sort, and that is all the more reason why an outraged public should label them for what they are by requiring them to label their merchandise as truthfully."

## *Correspondence*

### Tampon for Nose and Nasopharynx.

Minneapolis, April 18, 1905.

*To the Editor:*—In The Journal, April 1, page 1073, you abstract G. Lennhoff's description of a tampon for nose and nasopharynx, a long narrow strip of gauze tied at one end with a strong thread which is passed through several folds of the gauze, the string to be held by an assistant while the operator packs the gauze into the nose to the required extent. Permit me to make an addition to the technic, which makes the tampon the best possible. I have used such a tampon, which I devised five years ago, as an improvement on Ingals' many string tampon, with great satisfaction. The one difficulty is that of packing the gauze along the thread without entanglements. The best "assistant" is a tube, through which the string is passed, which serves to carry the tied end of gauze to the nasopharynx, and over which the folds of gauze are easily slipped to the required extent with dressing forceps. After a few folds have been passed into the nasopharynx the tube is withdrawn an inch or more, the folds drawn forward by the string, and tube and string held firmly while the rest of the gauze is packed. The tube is easily withdrawn and the patient has been subjected to the least possible discomfort. A decided advantage will be found in dipping the tampon in melted vaselin just before it is used.

Edward J. Brown, M.D.

## *Association News*

### Announcement of Portland Committee.

The Committe of Arrangements of the Portland session have issued a circular of information to members of the American Medical Association from which we quote:

PORTLAND.

Portland is a city of approximately 150,000 inhabitants. The climate in July is delightful, the days never excessively warm and the nights always cool and refreshing. It is situated on the beautiful Willamette River, six miles from the Columbia (by trolley line) and 100 miles from the ocean. From any of the elevated points back of the city, easily accessible by car lines, can be seen the snow-capped peaks of Mount Hood, Mount St. Helens, Mount Rainier, Mount Adams and Mount Jefferson, ranging from 10,000 to 14,000 feet in altitude, presenting a view such as perhaps can not be obtained from any other city in the world.

The social features of the entertainment include: Car rides to these view points; a river excursion up the river through the great gorge of the Columbia, where the basaltic cliffs rise on either side to a height of 3,000 to 4,000 feet, over which plunge the waters of some of the most beautiful falls in the United States or the world; a railroad excursion to the Pacific Ocean and a day on the beach. These and other social events will be afforded delegates and members.

SIDE TRIPS.

Arrangements have been made for side trips for those who may desire them, at reduced rates, to Alaska, Japan and the Hawaiian Islands. The following rates have been obtained for a party of not less than twenty to each place:

| | |
|---|---|
| San Francisco to Honolulu and return | $110.00 |
| San Francisco to Yokohama and return | 240.00 |
| San Francisco to Hong Kong and return | 270.00 |
| Seattle or Tacoma to Alaska and return | 70.00 |

The Alaska rate is a general excursion rate, and not limited to any number. The Alaska trip includes stops at Ketchikan, Wrangel, Douglas Island, Juneau, Skagway and Sitka, and is the most attractive scenic trip in the world to-day. If a sufficient number signify their desire to make this trip, it is probable a special steamer will be chartered to accommodate them. The fare from Portland to Tacoma and Seattle is $4.35 and $5.60, respectively. The Alaska trip takes twelve days. Dates have not yet been set.

Reservations for the trip to Honolulu, Yokohama or Hong Kong must be made before July 1. The *Korea*, a first-class Trans-Pacific steamer, leaves San Francisco, July 22. Application should be made as soon as possible to the Committee of Arrangements, so that they may know whether the required number (20) desire to avail themselves of this opportunity to take advantage of these greatly reduced rates.

Cloud Cap Inn is at the snow line of Mount Hood. A trip to this place, situated at the foot of the glacier of Mount Hood, at an elevation of 7,000 feet, is easily made from Portland at small expense of money and time. The trip can be made from Portland to Mount Hood by daylight, at a round-trip fare of $9.50. Expense at the inn, $3.00 per day. Ascent of the mountain to its summit can be made from this point in one day. The route is by rail to Hood River; thence twenty-seven miles by stage to the inn. The stage trip is through magnificent forests and amid continuous mountain scenery unsurpassed in the world.

HOTEL ACCOMMODATIONS.

Portland is well supplied with hotel accommodations; but on account of the great number of people who will attend the Lewis and Clark Fair it would be well for all intending visitors to secure rooms in advance through the Committee of Arrangements. The committee having this in hand expect to secure rooms sufficient to meet all requirements of our visitors and by an organized messenger service to be able to locate them promptly on arrival. Rates will probably be a slight advance on ordinary charges, but we intend to see that they are not excessive in any case.

Address all communications to Dr. K. A. J. Mackenzie, chairman of the Committee of Arrangements, Portland, Ore.

### Indiana's Route to Portland.

Drs. F. C. Heath and F. B. Wynn, Indianapolis, have arranged for through sleeping cars to leave Indianapolis June 30, 11:50 p. m., to join the Yellowstone Park Special leaving Chicago 11:00 a. m. July 1 and to arrive in Portland July 10, 11:30 a. m. The return will be over the Canadian Pacific, leaving Portland July 17 and reaching Indianapolis July 25, 3:40 p. m.

## *Marriages*

James R. Graham, M.D., Allen, Neb., to Miss Beryl Hathaway of Manning, Iowa, April 2.

Leon Moye, M.D., Adrian, Ga., to Miss Katherine Westbrook, of Atlanta, Ga., April 12.

Robert Alpha Weston, M.D., Anita, Iowa, to Miss Hattie Bovee, at Atlantic, Iowa, April 12.

Hiram R. Stillwell, M.D., Denver, Colo., to Miss McClintock of Los Angeles, Cal., at Denver.

Perry Engle, M.D., to Mrs. Mary C. Barker, both of Newton, Iowa, at Des Moines, Iowa, April 12.

Frank Kells Boland, M.D., Atlanta, Ga., to Miss Mollie Lelia Horsely of West Point, Ga., April 25.

Luther Martin Leisenring, M.D., Placerville, Cal., to Miss Ethel Cora Wilcox of Omaha, Neb., April 26.

Carleton Mitchell, M.D., New Orleans, to Miss Kate Ronaldson of Baton Rouge, La., at Jackson, Miss., April 11.

# Deaths

**Ernest J. Mellish, M.D.** Rush Medical College, Chicago, 1886, a member of the American Medical Association, American Association for the Advancement of Science, Cook County Hospital Alumni Association, Chicago Medical Society, State Medical Association of Texas, El Paso County Medical Society and Physicians' Club of Chicago; fellow of the Chicago Surgical Society, formerly instructor in surgery, Rush Medical College; surgeon to the Union Hospital and attending assistant gynecologist St. Joseph's Hospital, Chicago; surgeon to the Hotel Dieu, El Paso; prominent as a surgeon and an anesthetist; who was obliged to leave Chicago for Texas on account of ill health, three years ago, died at his home in El Paso, April 24, from tubercular meningitis.

**William Wallace Burns, M.D.** University of Louisville Medical Department, 1843, a member of the American Medical Association, twice president and three times mayor of Polo, Ill.; for 27 years a member of the local school board; commissioned surgeon in both the Mexican and Civil wars, one of the oldest and most prominent practitioners of northern Illinois, died at his home in Polo, April 18, from senile debility, after an illness of several weeks, aged 83.

**Patrick J. Lynch, M.D.** New York University, New York City, 1857; chief of clinic for seven years to Dr. Valentine Mott; a member of the American Medical Association, New York State Medical Association, New York County Medical Society, New York Academy of Medicine, Physicians' Mutual Aid Association and Medical Union, died at his home in New York City, April 21, aged 76.

**William Bryant Small, M.D.** Bellevue Hospital Medical College, New York City, 1888, a member of the American Medical Association; president of the Maine Academy of Medicine and Science; member of the Maine Medical Association and Androscoggin County Medical Society, attending physician to the Central Maine General Hospital, Lewiston, died at his home in that city, April 13, aged 41.

**Charles M. Taylor, M.D.** Transylvania University Medical Department, Lexington, Ky., 1856, formerly of South Bend, Ark., assistant superintendent of the Kentucky State Asylum, surgeon and assistant surgeon-general in the Confederate service during the Civil War, died at his home in Little Rock, Ark., April 15, after a brief illness, aged 72.

**John Herald, M.D.** Faculty of Medicine of Queen's University, Kingston, Ont., 1884, a prominent practitioner of Kingston, and professor of clinical medicine and dermatology in Queen's University, died at the Toronto General Hospital, February 13, after an operation for the removal of gallstones, aged 49.

**J. Lee Adams, M.D.** University of Georgetown Medical Department, Washington, D. C., 1868, chief of the claims division of the United States Internal Revenue Bureau, died at the Emergency Hospital, Washington, D. C., April 17, from kidney disease, after an illness of three weeks, aged 63.

**Isaac S. Weyand, M.D.** Department of Medicine of the University of Pennsylvania, Philadelphia, 1866, formerly mayor of Belle Fourche, S. D., committed suicide in Denver, Colo., by opening an artery in his leg, April 20, while despondent because of indictment for illegal use of the mails.

**J. Wadsworth Terry, M.D.** Medical Institution of Yale College, New Haven, Conn., 1862, a surgeon during the Civil War; a member of the American Medical Association, and of the Medical Society of the State of New Jersey, died at his home in Englewood, N. J., April 10, aged 71.

**James L. Day, M.D.** Medical Department of the University of Tennessee, Nashville, 1885, of Lebanon, Mo., for two years an acting assistant surgeon in the Army, serving in the Philippine Islands, died from disease of the brain at a sanitarium in Tecumseh, Okla., April 10, aged 40.

**Benjamin Haile Matheson, M.D.** Medical College of the State of South Carolina, Charleston, 1855, surgeon in the Confederate service during the Civil War, died in Gainesville, Fla., March 29, after an illness of more than three years, from nephritis, aged 78.

**James J. Giltenan, M.D.** Cincinnati College of Medicine and Surgery, 1867, of Chicago; for a long time connected with the Department of Health as medical inspector, died in Alexian Brothers' Hospital, April 20, after an illness of several weeks, aged 62.

**Byron J. De Witt, M.D.** Medical Department of the University of Buffalo, 1850, for many years a member of the American Medical Association; a surgeon in the Army during the Civil War, died at his home in Oswego, N. Y., April 18, aged 78.

**Willard H. Coffron, M.D.** University of Georgetown Medical Department, Washington, D. C., 1888, formerly professor of chemistry at his alma mater, died at his home in Grindstone City, Mich., and was buried April 11, aged 44.

**Henry C. Sloggett, M.D.** London, 1878, superintendent of the Oahu Insane Asylum, Honolulu, H. I., formerly president of the local board of health, died suddenly from cerebral hemorrhage while making a call in Honolulu, March 24.

**Edward Moeller, M.D.** Examination, New Jersey, 1876, formerly of Newark, N. J., died at his home in Baltimore, March 9, aged 72. He was surgeon of the Twenty-seventh Pennsylvania Volunteer Infantry in the Civil War.

**N. Newlin Stokes, M.D.** Jefferson Medical College, Philadelphia, 1854, for many years one of the board of managers of the New Jersey State Hospital, Trenton, died at his home in Moorestown, N. J., April 19, aged 72.

**Calvin M. Boswell, M.D.** Willamette University Medical Department, Salem, Ore., 1870, the pioneer physician of Colfax, Wash., died at his home in that city, April 8, from tuberculosis, after an illness of a year, aged 60.

**Thomas B. Gordon, M.D.** Missouri Medical College, St. Louis, 1889, formerly of Mechanicsburg, Ill., died at the Illinois Central Hospital for the Insane, Jacksonville, April 10, after an illness of several years, aged 42.

**Fayette Coleman Clark, M.D.** Rush Medical College, Chicago, 1897, of De Smet, S. D., died from cerebral hemorrhage at the home of his parents in St. Charles, Minn., April 11, after an illness of five weeks, aged 30.

**Wright J. Chittock, M.D.** University of Michigan Department of Medicine and Surgery, Ann Arbor, 1882, died at his home in Jackson, Mich., April 14, from pneumonia, after an illness of only three days, aged 48.

**Wiley L. Dixon, M.D.** University of Louisville Medical Department, 1894, formerly of Morganfield, Ky., died at his home in Clarkston, Mo., March 1, from pneumonia, after an illness of six weeks, aged 36.

**Elton W. Townsend, M.D.** Vanderbilt University Medical Department, Nashville, Tenn., 1905, died at his home in Princess Anne, Md., April 15, from cerebrospinal meningitis, after an illness of two days.

**M. L. Meriwether, M.D.** University of Louisville Medical Department, 1847, the oldest practitioner of Greene County, Ark., died at his home in Paragould, April 15, from senile debility, aged 76.

**John Saunders Williams, M.D.** New York University, New York City, 1860, assistant surgeon in the Confederate service during the Civil War, died at his home in Gladys, Va., April 9, aged 69.

**James Masten, M.D.** Years of Practice, Pennsylvania, the oldest practitioner of Tioga County, Pa., died at his home in Westfield, April 14, from cancer, after an illness of a year, aged 77.

**Eli Dimock, M.D.** New York University, New York City, 1844, a member of the Ohio State Medical Society, died at his home in Dupont, Ohio, March 12, from senile debility, aged 82.

**Courtney L. Smith, M.D.** Rush Medical College, Chicago, 1879, died at his home in Aurora, Ill., from labioglossopharyngeal paralysis, April 15, after an illness of several months, aged 47.

**Benjamin Brooke Temple, M.D.** Medical College of Virginia, Richmond, 1860, surgeon in the Confederate service during the Civil War, died at his home in Danville, Va., March 11, aged 66.

**Albert Horatio Webb, M.D.**, of Lexington, a member of the Davidson County (N. C.) Medical Society, died in Salem, N. C., April 2, from pneumonia, after a short illness, aged 64.

**James Carter Ellis, M.D.** Louisville National Medical College, 1897, died at his home in Anderson, Ind., April 14, from tuberculosis, after an illness of several months, aged 33.

**Charles W. Hilliard, M.D.** Macon (Ga.) 1860, health registrar of Troy, Ala., for several years, died at his home in that city, April 15, from influenza, after a short illness.

**Charles D. Brown, M.D.** Rush Medical College, Chicago, 1852, for many years a practitioner of Laporte County, Ind., died at his home in South Bend, Ind., April 16, aged 79.

**Patrick H. Reaney, M.D.** Michigan College of Medicine and Surgery, Detroit, 1903, died at his home in Detroit, April 17, from tuberculosis, after an illness of two years.

**Herman Schroeder, M.D.** Cleveland Medical College, 1850, died at his home in Bloomington, Ill., April 7, from heart disease, after an illness of five years, aged 84.

**Hosea B. Townsend, M.D.** Berkshire Medical College, Pittsfield, Mass., 1844, a pioneer physician of Coldwater, Mich., died at his home in that city, April 13, aged 86.

**J. Albro Eaton, M.D.** Ohio, 1876, of Farmingdale, N. Y., died at Nassau County Hospital, Mineola, April 12, from pleuropneumonia, after an illness of two days.

**Alonzo Lewis Kennedy, M.D.** Massachusetts, 1875, died at his home in Brookline, Mass., April 13, from heart disease, after an illness of 18 days, aged 60.

**A. B. Duncan, M.D.** Medical Department of the University of Tennessee, Nashville, 1881, of Picklosi, Texas, died recently at his home near Quitman, Texas.

**A. M. C. Smith, M.D.** Examination, California, 1877, a pioneer of Siskiyou County, Cal., died at the home of his daughter in Lodi, April 6, aged 76.

**Charles Ellsworth Hewitt, M.D.** Jefferson Medical College, Philadelphia, 1891, formerly of Bradford, Pa., died in Williamsport, Pa., April 14, aged 38.

**J. Mathiot Cummins, M.D.** Jefferson Medical College, Philadelphia, 1858, died at his home in Larned, Kan., April 8, after an illness of four months.

**Loren M. Nichols, M.D.** Kentucky School of Medicine, Louisville, 1886, died at his home in Janssen, Ark., April 13, after a short illness, aged 45.

**William C. Ravenel, M.D.** Medical College of the State of South Carolina, Charleston, 1850, died at his home in Charleston, April 21, aged 77.

**Marshall Enfield, M.D.** Rush Medical College, Chicago, 1873, of Clarinda, Iowa, died at Montrose, Colo., April 12, after a long illness, aged 60.

**Henry H. Parrott, M.D.** M.R.C.S. England, 1842, pioneer physician of Marquette County, Wis., died at his home in Douglas, April 18, aged 85.

**Albert B. Woodward, M.D.** New York City, 1876, died suddenly at his home in Tunkhannock, Pa., April 10, from heart disease, aged 80.

**Oliver A. Dooley, M.D.** St. Louis, 1899, of Glensted, Mo., died in Miller County, Mo., February 20, after an illness of a year, aged 27.

**Adolph Hoffman, M.D.** Jenner Medical College, Chicago, 1896, died suddenly at his home in Oak Park, Ill., April 13, aged 43.

**J. C. W. Kennerly, M.D.** Savannah (Ga.) Medical College, 1855, died at his home in Mount Willing, S. C., April 13, aged 78.

**Isaac W. Jones, M.D.** New York University, New York City, 1857, died recently at his home in Zeb, Rowan County, N. C.

**Sarah A. Henderson, M.D.** Ohio, 1876, died at her home in Cleveland, Ohio, April 14, after an invalidism of 16 years.

**Edgar C. Bass, M.D.** Albany (N. Y.) Medical College, 1858, died at his home in Cazenovia, N. Y., April 15.

**Harriet T. Dwyer, M.D.** Cincinnati, Ohio, 1878, died at her home in Cincinnati, April 14, aged 85.

### Deaths Abroad.

**Paul Garnier, M.D.**, of Paris, a well-known alienist and medicolegal authority. His works on neurology, criminology and psychology were numerous and important, a number of them having received prizes from scientific societies. He had long been medical inspector of the public insane asylums of the Paris district and official medicolegal expert to the Paris courts. He was one of the experts summoned recently by the court of Vienna to examine the mental condition of the princess of Coburg. His report had not been completed when death surprised him, March 20, at the age of 57.

**G. Meissner, M.D.**, the eminent professor of physiology and anatomy at Göttingen, whose name is associated with early investigations of the so-called touch corpuscles and of various phases of the digestion of albumin, died at Göttingen, March 30, aged 76.

**J. S. A. Hjort, M.D.**, a prominent ophthalmologist of Christiania, Norway, originator of the open treatment after cataract operations and other operations on the eye, and author of several works on ophthalmology, died at Christiania, March 6, aged 70.

**W. Schulek, M.D.**, professor of ophthalmology at Budapest, died March 14, aged 62.

## Book Notices

Principles of Physiological Psychology. By William Wundt, Professor of Philosophy in the University of Leipsic. Translated from the Fifth German Edition (1902) by Edward Bradford Titchener, Sage Professor of Psychology in the Cornell University. Vol. I. With 105 Figures in the Text. Cloth. Pp. 345. Price, $3.00. New York: The Macmillan Co. 1904.

A distinct service has been rendered English-speaking students of mental phenomena by this translation of Wundt's "Gründzuge." The unique position which the author holds as one of the fathers of modern psychology, and as one whose contributions to psychology, physiology and philosophy have covered almost half a century, has made this detailed statement of his investigations and beliefs a veritable bulwark of science. On account, however, of the almost Kantian complexity of its style, delving into the "Gründzuge" heretofore has been a forbidding task which has turned many to the already translated "Outlines of Psychology" and to the "Lectures on Human and Animal Psychology" for an expression of Wundt's views. Titchener, a most valiant translator, as shown by his statement that the present edition is the third one translated by him but only the first one published, has mastered this difficulty of style and has succeeded in putting the text into understandable form.

Although the work as a whole is intended, Wundt states, as an exposition of his own experiences and convictions, this first volume is mostly concerned with reviewing such researches into the anatomy and physiology of the nervous system as seem to bear on psychology. One can take few exceptions to this review which covers the most important discoveries up to 1902. Modern neurologists, Luciani, Bechterew, von Monakow, Cajal and other masters, are drawn on liberally. It is interesting herein to note the influence of pathologic observation on psychology. Wundt broke away from the school of Ferrier and Munk, who thought that intelligence is a diffuse function of the whole cerebrum, and argued in his "Outlines" of 1896 that certain pathologic findings were suggestive of localization of intelligence in the frontal lobes. Now, in 1902, he states that there is direct evidence of the presence in the frontal lobes of nodal points of conduction, made up intrinsically of comparatively simple elements, but themselves of greatest importance for that complex of functional co-operation equivalent to intelligence. That occasionally lesions of the frontal lobes occur without permanent moral or intellectual injury is not sufficient to outweigh the direct evidence, says Wundt. One thinks at once of the excellent work of Phelps and wishes our author had known before he wrote that mental default is frequent when the lesion is limited to the left prefrontal lobe, the intelligence generally remaining intact when only the right lobe is involved. Altogether, there is much of value for neurologists and psychologists in this thorough ploughing up of the field of physiologic psychology represented by Wundt's "Principles," but in reading the work one earnestly wishes the ploughman had left the furrows straighter and had gathered into a clear, clean heap at the end of each all things of "muckle worth" turned up in its course.

Recherches Cliniques et Therapeutiques sur L'Epilepsie L'Hysterie, et L'Idiote. Compte-Rendu Service des Enfants Idiots, Epileptiques et Arriérés de Bicêtre Pendant L'Année, 1903. Par Bourneville. Avec la collaboration de J. Boyer, L. Izou, Lemaire, Reine Maugeret (Mlle.), Julian Noir, Paul-Boncour. Volume XXIV. Avec 72 figures dans le texte et 17 planches. Paper. Paris: Felix Alcan, Editeur, Boulevard St. Germain, 108. 1904.

In the entire literature of neuropathology there is nothing more remarkable than the series of volumes issued by Bourneville, written by him and his pupils or assistants. The first number appeared about 1881, and the present volume of 530 pages is the twenty-fourth—an average of one volume per year. The set constitutes almost a cyclopedia on idiocy, imbecility and epilepsy, and although they are modestly called clinical and therapeutic studies, medical literature contains no better example of the clinico-pathologic method. Nowhere is to be found such a wealth of clinical detail with autopsy findings relating to defective and epileptic children. The industry, patience and scientific acumen displayed in this collection of papers are something to conjure with. That this mine has been worked so little by students and writers is simply a literary marvel. In quite a different branch of the subject have the labors of Bourneville and his associates been equally remarkable. How much do our present teachers of defective children know of Bourneville, his methods and results, and how often do they mention him in speech and writings? And yet for years he has been leading the van in the development of pedagogic methods for the development of defectives and has been publishing his work in these annual reports. Volume XXIV is no exception to the rule of excellence established by its predecessors. It is divided into two parts. The first, of 184 pages, is devoted to a report of Bourneville's remarkable service at the hospice of Bicêtre and contains much of interest and value to physicians in institutions where idiot and imbecile children are cared for. Part two, of 346 pages, contains 16 papers or communications of 2 to 185 pages each, with some beautiful illustrations, and some information of the personnel. The principal papers are on various forms of dwarfism (nanisme); atrophic cerebral sclerosis; imbecility, hemiplegia and epilepsy with autopsy; temperature in status epilepticus; cranial changes in cerebral atrophy and several statistical papers.

The Medical Examination for Life Insurance and Its Associated Clinical Methods, with Chapters on the Insurance of Substandard Lives and Accident Insurance. By Charles Lyman Greene, M.D., St. Paul, Professor of the Theory and Practice of Medicine in the University of Minnesota. Second Edition. Revised and Enlarged, with 99 Illustrations. Cloth. Pp. 466. Price, $4.00 net. Philadelphia: P. Blakiston's Son & Co. 1905.

The second edition of this work shows careful revision and change of arrangement. The rules governing selection of applicants have been greatly amplified, tuberculosis, appendicitis and diseases of the heart are even more exhaustively considered than in the first edition, and a great deal has been added to the section on the insurance of women. The bearing of occupation on the value of risks for insurance is mentioned at great length and a report of the collective investigation of the Actuarial Society of America has been added.

Life Insurance Examinations. A Manual for the Medical Examiner and for All Interested in Life Insurance. By Brandreth Symonds, A.M., M.D., Medical Director Mutual Life Insurance Co. of New York Cloth. Pp. 213. Price, $1.00. New York and London: G. P. Putnam's Sons. 1905.

In this bringing together of the lectures on life insurance examinations which he delivered at the University and Bellevue Hospital Medical College, New York City, the author devotes the first part of the work to introductory and historical matters. He then considers the relations of the examiner to the applicant, the bearing of disease on value for life insurance, physical examination and frauds. In two appendices the author gives an excellent summary of the chemical examination of the urine and of heart murmurs.

Uncooked Foods and How to Use Them. A Treatise on How to Get the Highest Form of Animal Energy from Food, with Recipes for Preparation, Healthful Combinations and Menus. By Mr. and Mrs. Eugene Christian. Cloth. Pp. 246. Price. $1.00. New York: The Health-Culture Co. 1904.

This volume is certainly interesting. Without discussing the uncooked food plan—which is to most thinking people only a fad—we recommend this book to those who wish to prescribe a variety in diet or to eliminate certain troubles from errors and excesses in eating. There are scores of recipes and the book might be called a *cook*-book were it not for the necessity of calling it an uncook-book.

American Alkalometry. Vol. IV. A Digest of Clinic Teachings 1902 and 1903. Editors, W. C. Abbott and W. F. Waugh, Chicago. Cloth. Pp. 734—VIII. Price, $2.00 net. Chicago: The Clinic Publishing Co.

This volume is a compilation in alphabetical order of the contents of the *Alkaloidal Clinic* of 1902 and 1903, thus giving articles, correspondence and editorial comment on various alkaloidal treatment subjects. Those who use these remedies will find the volume valuable. The rearrangement should have been carried further: some articles treat of several subjects and yet are placed under one heading without reference to the other subjects.

## Miscellany

**Opium in the Philippines.**—The *Pharmaceutical Era* states that the Filipino Progress Association has sent a petition to Congress asking that power be conferred on the Philippine commission or on the Philippine legislature, soon to be organized, to enact a law for the restriction or prohibition of the sale of opium in the islands. As a means of abolishing the opium trade it is suggested that the regulations adopted in Formosa by the Japanese government be substantially followed in the Philippines. It is also claimed that our tariff laws, as applied in the Philippines, have proved no adequate barrier.

**Doctors.**—"No title is better than that which it represents. 'Doctor' as applied to medical men does not convey the sense of dignity or learning to any remarkable degree, because the title is exploited by a dozen or more classes of men who possess neither the one nor the other." Thus remarks the *Pharmaceutical Era*, commenting on the letter of a correspondent who would add to the list of "doctors" by conferring the title on pharmacists. "Honor must come spontaneously if it is to be worth having, and recognition of merit by the public in this way is equal to that conferred by any institution of learning or introduced by any set of resolutions."

**Philanthropy and Business.**—It has been shown by a number of writers that sanitary tenements may be constructed on a financial basis which will pay 4, 5 or 6 per cent. on the investment. These will be well lighted and ventilated, and may be rented at $7.00 or $8.00 a month for three or four rooms. It is stated that a company has been formed in Washington, D. C., to arrange tenements on this plan as a business enterprise, but having with it the very desirable and charitable feature that it is a work of great benefit to those who have to live in the slums. If the project is successful it ought to be extended into other cities, because it means a combination of business investment with philanthropy and civic improvement.

**Etiology of Smallpox: Bacillus V.**—A. Mendonça is assistant at the Bacteriologic Institute of S. Paulo, Brazil, and coeditor of the *Revista Medica de S. Paulo*, now entering on its eighth year. The issue for January 15, 1905, contains an illustrated description of a bacillus isolated by him from smallpox pustules. He states that it is extremely virulent and induces in dogs a disease closely resembling smallpox in man. Living cultures of the bacillus—which he calls the bacillus V—inoculated into dogs display decided preventive and curative properties. His research further demonstrated that the serum of animals immunized against the bacillus V seems to enhance the virulence of ordinary vaccine. The bacillus resembles the non-pathogenic pseudodiphtheria bacillus, and requires inoculation of animals for positive differentiation.

**Facial Anastomosis.**—Francis Villar (*Rev. Hebdom. de Laryngologie*) recommends in the surgical relief of facial paralysis the union of the facial with the hypoglossal for several reasons. While the operative difficulty is somewhat greater than in the union with the spinal accessory, the operation is not really formidable. The anastomosis with the hypoglossal avoids the danger of atrophy and paralysis of the shoulder or the synergizing of its muscles with those of the face, which are objections to the other method. The cortical center, moreover, of the facial is much more closely connected with that of the hypoglossal than with that of the spinal accessory and the bulbo-protuberential nuclei of the facial and hypoglossal are united by a posterior longitudinal bundle. The anatomic arrangement altogether is, he thinks, more conducive to the re-education of the facial movements. The importance of educational exercises, as recommended by Taylor and Clark, is insisted on as better than relying too much on electricity and massage.

**Tuberculin Treatment in Belgium and Holland.**—The eighth Flemish Medical Congress was held at Antwerp recently, and from the reports presented it appears that tuberculin is being used in therapeutics more extensively in Belgium and Holland than anywhere else to date. The tuberculin used is made in Belgium, and better results are said to have been reported at the Congress than have been published by Turban, Petruschky, Goetsch, Moeller and others in regard to Koch's tuberculin. The rule is followed that *all febrile reaction must be avoided.* If there is any febrile reaction, three days must pass without temperature before another dose can be given. Denys produces the tuberculin by merely filtering out the bacteria. He thinks that the Koch method of heating destroys some of the properties of the serum. It is applied in the treatment not only of pulmonary tuberculosis but also of tuberculous peritonitis and laryngeal tuberculosis, lupus and tuberculous bone and joint affections. The principal communications on the subject were made by J. Gervaerts and E. Wildiers. They are reviewed in the *Münch. med. Wochft.* of Feb. 14, 1905. M. Roebroeck reported a case of caries of the fifth rib, not benefited by three different operations, but finally cured by a five-months' course of tuberculin treatment.

**Insanity Witness Falls Into Awkward Blunder.**—When Dr. C., said to be an insanity expert, was called in that capacity to testify in the O'Shea murder trial yesterday afternoon before Judge McEwan, the physician was treated to an embarrassing surprise.

On cross-examination, Assistant State's Attorney Olson was quoting from a book of which Dr. C. is the author, as follows:

> Thus development is the intrinsic law of life, which, with the extrinsic complement (environment), gives extension and expansion along the lines of affinity limited by the specific character of the entity.

"Why, I don't know the meaning of that stuff," answered Dr. C. "It is not intelligible."

"I don't know what it is, either," answered Mr. Olson; "but you, doctor, ought to know."

"But I do not," he answered.

Mr. Olson smiled as he held up the book and said:

"Why, you wrote it yourself, doctor. I took it from your own book."

"Impossible," replied the witness. "That was never in my book."

Mr. Olson handed it to the physician, and a look of embarrassment overspread his features as he finally admitted that he had written the words.—*Chicago Tribune.*

# State Boards of Registration

## COMING EXAMINATIONS.

Board of Medical Examiners for the State of Texas, Austin, May 2. Secretary, M. M. Smith, M.D., Austin.

Indiana State Board of Medical Registration, State House, Indianapolis, May 2-4. Secretary, W. T. Gott, M.D., Crawfordsville.

Louisiana State Board of Medical Examiners, New Orleans, May 4-5. Secretary, Felix A. Larue, M.D., New Orleans.

Board of Medical Examiners of the State of North Carolina, May 17. Secretary, George W. Pressly, M.D., Charlotte, N. C.

Mississippi State Board of Health, Jackson, May 9-10. Secretary, J. F. Hunter, M.D., Jackson.

New York State Homeopathic and Eclectic Boards, New York, Albany, Syracuse and Buffalo, May 16-19. Chief of Examinations Division, Charles F. Wheelock, State Capitol, Albany.

Massachusetts Board of Registration in Medicine, State House, Boston, May 9-10. Secretary, Edwin B. Harvey, M.D., Room 139, State House, Boston.

**South Dakota January Examination.**—The report of this examination appeared in The Journal, Feb. 25, 1905, p. 646. The following questions were asked:

### SURGERY.

1. Give differential diagnosis of articular rheumatism and of arthritis deformans. Give treatment of latter. 2. Describe dislocation of knee joint. Give *prognosis* of a complete dislocation of the femur behind the head of the tibia. 3. How would you treat a case of fracture through the symphysis of the pubis, with a rupture of the urethra? 4. Describe Colles' fracture, and differentiate it from other injuries of the wrist. 5. Describe the operation for direct inguinal hernia, and say whether there is any difference in the anatomic coverings from those in indirect inguinal hernia. 6. Give diagnosis and treatment of floating kidney. 7. Give symptoms and treatment of fracture at the base of the skull. 8. Describe the operation of ligation of the common carotid artery and tell how the collateral circulation is established. 9. Give diagnosis and different operations for stone in the bladder. 10. Give differential diagnosis of a dislocation of the shoulder and a fracture of the neck of the humerus. Give treatment of latter.

### BACTERIOLOGY.

1. Describe the Klebs-Loeffler bacillus. 2. Name five pathogenic bacteria that do not stain by Gram's method. 3. Describe the Widal serum reaction. 4. Give in detail two methods of staining the Koch bacillus. 5. Name three color-producing bacteria.

### ANATOMY.

1. Describe the frontal bone; the sagittal and lambdoidal sutures. 2. Describe the shoulder joint and name the bones and ligaments forming it. Give attachment of ligaments. 3. Describe the gracilis, gastrocnemius and rectus femoris muscles, giving *origin and insertion of each.* 4. Give origin of the renal arteries and the sacra media artery. Describe the celic axis. 5. Describe Luschka's gland, suprarenal capsules and lachrymal glands. 6. Give nerve supply of the spleen and of the *gracilis muscle,* and describe Meckel's ganglion and Arnold's ganglion. 7. Describe the pons varolii. 8. Describe the pericardium. 9. Describe the pancreas. 10. Describe the wrist joint, giving names and arrangement of bones.

### DISEASES OF WOMEN.

1. Give symptoms, [illegible] diagnosis and treatment of dysmenorrhea. 2. Give causes of uterine hemorrhage. 3. Differentiate *between chronic metritis, early pregnancy,* fibroid tumors and malignant disease of the uterus. 4. Mention principal causes of sterility in the female; also of vaginitis. 5. Prepare the patient, and describe a trachelorrhaphy for deep bilateral laceration with extroversion.

### EYE AND EAR.

1. Give technical name, describe and treat what is popularly known as "pink eye." 2. Sympathetic ophthalmia. Give early symptoms, *causes and treatment.* 3. What *are the causes, symptoms* and treatment of chalazion? 4. Describe fully the effect of nasopharyngeal adenoids on the ear and its function. 5. What are the most common causes of pus discharge from the ear, and how would you treat it?

### SKIN AND VENEREAL DISEASES.

1. Draw a clear cut clinical difference between chickenpox and smallpox. 2. Describe the seborrhea of the scalp, and give treatment. 3. *Diagnose and treat impetigo contagiosa.* 4. What do you know about barbers' itch, and how would you treat it? Differentiate it from eczema and from impetigo. 5. Give a clinical picture of erysipelas and treatment. 6. Give the history and description of syphilitic dermatitis. 7. Differentiate hard and soft *chancre, and give their respective treatments.* 8. *Give history,* diagnosis and treatment of gonorrhea in men. 9. Enumerate causes of orchitis, and how would you treat it? 10. How would you treat a case of gleet?

### CHEMISTRY.

1. What does a chemical formula represent? 2. Define deliquescence, efflorescence, valance. 3. What is meant by an allotropic modification of an element? Give an example. 4. Give the flame test for potassium and sodium. 5. Name three abnormal constituents of urine frequently found, state their clinical significance, and give chemical test for each. 6. How would you detect sugar in urine? How estimate the daily quantity? 7. What is a disinfectant? Name some. 8. How can you prove the presence of free iodin? 9. What is formed when sulphur burns? 10. Give chemical antidote for poisoning by lunar caustic. Also its chemical name and formula.

### HOMEOPATHIC THERAPEUTICS.

1. Differentiate diphtheria and follicular tonsillitis. Give two remedies for each, with indications for their use. 2. Outline your *treatment of pleurisy, giving remedies* you would use before and after effusion. 3. How do you treat puerperal fever? Name with indications the remedies you would administer. 4. Differentiate aloes, podophyllum and mercurius in diarrheas. 5. On what indications would you administer arsenicum, graphites and sulphur in eczema? 6. Diagnose and treat a case of scarlet fever. Also give two of the complications most likely to occur. 7. Name, with indications for its use, what you consider the most prominent remedy in the treatment of cholera morbus. 8. Describe a clinical case fully in which you would prescribe cuprum. 9. Diagnose and treat earache in an infant. 10. Name, with indications, two remedies for chronic constipation.

### MEDICAL JURISPRUDENCE.

1. *Define idiocy, imbecility, cretinism.* 2. What is monomania? Name and define two common forms. 3. What are the duties of a coroner's inquest? 4. How would you diagnose rigor mortis from hysteria, catalepsy, apoplexy and epilepsy? 5. What are the disabilities of an unlicensed practitioner of medicine?

### OBSTETRICS.

1. Describe the third stage, and your management of the same, in an ordinary case of labor. 2. Define involution. When should it be complete, and what conditions may retard it? 3. Give early diagnosis in breech presentation. What the danger? Give method of delivery when interference is necessary. 4. Give principal causes and treatment in rupture of the uterus. Also rupture of cervix. Also rupture of perineum. 5. Describe manner of applying forceps with head in upper strait: and when you would use them. 6. Describe a case of phlegmasia alba dolens, giving diagnosis, time of occurrence, cause, termination and treatment. 7. Differentiate ovarian cyst, ascites and pregnancy at beginning of fifth month. 8. Name the diameters of the fetal head and give average measurements at full term. 9. Describe a case of puerperal fever, giving cause, time of invasion, symptoms, course and anatomic appearance on postmortem examination, death occurring after three weeks. 10. Name and describe fully the contents of the uterus at full term, before labor begins, detailing the presentation and position of the child most frequent, in an uncomplicated, healthy case.

### GENERAL PATHOLOGY.

1. Describe lardaceous degeneration and give synonyms. 2. Name the principal pathogenic bacteria. 3. Define the word tumor. 4. Define *anemia,* aglobulism and achromatosis. 5. Define chlorosis, leucocytosis and leucocythemia.

### REGULAR THERAPEUTICS AND PRACTICE.

1. Define volt, ampere, ohm, and give Ohm's law. 2. Is the ampere used in electrotherapeutics to measure dosage? 3. Is

the Roentgen ray an electrical therapeutic agent? 4 Would you give KI in tablet, powder or pill? Why, or why not? 5. What is the best solution for hypodermoclysis? 6 Which is the artery of cerebral hemorrhage? 7 Describe a case of cerebral hemorrhage 8 Make a diagnosis of acute rheumatism, excluding similar diseases 9 Name all the causes of neuralgia you can call to mind 10 How would you treat a case of acute lobar pneumonia? 11. Diagnose a case of trichina spiralis, excluding similar diseases 12 Sketch a typical ammonio magnesian phosphate crystal 13 Make a drawing of a probable microscopic field containing tubercle bacilli —×1000. 14 What would you say ailed a patient aged 55 years if you found the following facts. Pulse 70, temperature 98 5, laborious respiration, abundant purulent sputum, barrel shaped thorax, percussion note full and clear over whole of both lungs, but not tympanitic, area of cardiac dullness reduced, rough vesicular breathing, excessively prolonged expiration, sonorous râles and pulmonary second sound accentuated?

ECLECTIC MATERIA MEDICA, THERAPEUTICS AND PRACTICE

1 Name three drugs belonging to each of the following classes: Narcotics, diaphoretics sedatives 2 Name the official preparations of gold, and describe its therapeutic uses 3 What is the adult dose of (a) atropin sulphate, (b) strychnia sulphate, (c) tincture of cantharides? 4 How is nitrite of amyl administered, and for what purpose? 5 Give the common name, therapeutic uses and dose of so[illegible] [illegible] Write a prescription containing tincture of [illegible] nitroglycerin, with the proper dose for a [illegible] 7. Give symptoms and treatment of an uncomplicated case of sciatica 8 Mention the salts of lithium, and give doses and uses 9 Name the official preparations of copper, and give dose of each 10 Give the symptoms you would expect to find where an overdose of chloral hydrate had been taken, and your treatment in such a case

PHYSIOLOGY.

1 Describe the normal pulse, and give the average rate during infancy, youth and old age 2 Describe the action of the kidneys 3 What are the normal constituents of the urine? 4 Describe rigor mortis Also tetanus 5 What is osmosis? Give an example 6 In what respect does the temperature differ in old age from that in adults? 7 What is the normal ratio of heart pulsations to respiration in a healthy adult? 8 In what respect do fresh blood stains differ from older blood stains? 9. What is color blindness, and what colors are most commonly indistinguishable by a person so affected? 10 Describe the physical characteristics of cartilage, and give illustrations of temporary and permanent cartilage

# *The Public Service*

## Navy Changes.

Changes in the Medical Corps, U S Navy, for the week ending April 22 1905

Tolfree, H M asst surgeon, ordered to report to the Surgeon General April 28 for a course of instruction at the Naval Museum of Hygiene and Medical School, Washington, D C

Dennis, J B, surgeon detached from the *Detroit* and ordered to Philadelphia for special duty, and thence to Washington, D C, to report to the Surgeon General

Ledbetter, R E P A surgeon, detached from the *Dixie* and ordered to the *Detroit*

Porter, F E, asst surgeon, detached from the Naval Hospital, Norfolk, Va, and ordered to the *Dixie*, sailing from New York about April 26

Sturt, A, P A surgeon ordered to the Naval Hospital, Chelsea, Mass April 24

Geiger A J, asst surgeon, detached from the Naval Station, Port Royal S C, and ordered to the *Chesapeake*

Dean F W S, surgeon detached from the Naval Station, Olongapo P I, and ordered to the *Frolic*

Oman C M, asst surgeon detached from the *Frolic* and ordered home

Owens W D and Chapman R B asst surgeons, detached from the Naval Hospital Mare Island, Cal May 12, and ordered to the Asiatic Station via the *Lawton*

Strite, C E, asst surgeon detached from the Naval Hospital, Norfolk, Va and ordered to the Asiatic Station via the *Lawton*.

Mink, O J asst surgeon detached from the Naval Hospital, New York and ordered to the Asiatic Station, via the *Lawton*

Neilson J D and Munson F M, asst surgeons detached from the Naval Station Guam L I, and ordered home to wait orders

Stoops R E asst surgeon detached from the *Pensacola*, May 12 and ordered to the Asiatic Station via the *Lawton*

McLean H T, asst surgeon detached from the Naval Hospital Boston April 29, and ordered to the Naval Station, Guam, L I, via the *Solace*

Clifford A R, asst surgeon detached from the Navy Yard, New York April 29, and ordered to the Naval Hospital, Canacoa, P I via the *Lawton*

Smith H W, asst surgeon, detached from the Naval Museum of Hygiene and Medical School Washington D C, and ordered to the Naval Hospital Canacoa P I via the *Lawton*

Wickes G L, asst surgeon, detached from the *Lancaster*, April 29 and ordered to the Asiatic Station via the *Solace*

Berryhill T A surgeon, detached from the *Oregon* and ordered home to wait orders

Nash F S surgeon ordered to the *Oregon*, via the *Lawton*, May 15

## Public Health and Marine-Hospital Service.

List of the changes of station and duties of commissioned and non commissioned officers of the Public Health and Marine-Hospital Service for the seven days ending April 19 1905:

Carrington P M surgeon granted leave of absence for one month and fifteen days from May 2

Trask, J. W., asst surgeon relieved from duty at Chicago and directed to proceed to Washington, D. C, and report at the Bureau for duty.

Robertson, H McG, asst surgeon, detailed as inspector of unserviceable property at the Hygienic Laboratory, Washington, D C.

Collins, G L, asst surgeon, bureau telegram of April 5, 1905, granting Assistant Surgeon Collins an extension of leave of absence for five days from April 6, 1905, amended to read three days

Duke, B F., acting asst surgeon, granted leave of absence for two days from April 20

Hamilton, H. J, acting asst surgeon, granted leave of absence for six days from April 24.

Jackson, J M., Jr, acting asst surgeon, granted leave of absence for seven days from April 16

Kurtz W E, acting asst. surgeon, granted leave of absence on account of sickness, for sixteen days from March 27

## Health Reports.

The following cases of smallpox, yellow fever, cholera and plague have been reported to the Surgeon General, Public Health and Marine Hospital Service, during the week ended April 22, 1905:

SMALLPOX—UNITED STATES

Florida: April 8 15, Jacksonville 5 cases; West Tampa, 2 cases

Illinois: Chicago, April 8 15, 9 cases

Kansas. Topeka, April 1 8, 2 cases, in 46 counties, March 1-31, 1,123 cases 5 deaths

Kentucky: Louisville, April 6 13, 5 cases

Louisiana: New Orleans, April 1 15, 39 cases

Maine. Portland April 1-8, 1 case

Michigan: Ann Arbor, April 1 8 1 case (imported): April 8 15, Detroit, 1 case; Grand Rapids, 2 cases; at 42 localities, March 25 April 1, present.

Missouri: St. Louis, April 8 15, 24 cases, 1 death

New York: New York, April 8 15, 2 cases, 1 death

Ohio: Cincinnati April 7-14, 1 case

South Carolina Charleston, April 8 15, 2 cases; Greenville, April 1 8, 3 cases

Tennessee Nashville, April 8 15, 1 case

Washington: March 1 31, Mason County, 1 case: Snohomish County, 2 cases

Wisconsin: Milwaukee, April 15, 8 cases

SMALLPOX—INSULAR

Philippine Islands: Manila, Feb 18 25, 2 cases, 1 death

SMALLPOX—FOREIGN

Argentina: Buenos Ayres Jan 1-31, 28 deaths

Brazil: Rio de Janeiro, March 19 26, 4 cases, 5 deaths; Bahia, March 11-25, 16 cases, 2 deaths

Great Britain: March 18 25, London, 3 cases: Birmingham, 1 case: Cardiff, 2 cases; March 25 April 1, Liverpool, 1 case; Southampton, 9 cases; contacts from an imported case

India Bombay, March 14-21, 143 deaths: Calcutta, March 11-18, 9 deaths, Karachi, March 12 19, 15 cases, 2 deaths; Madras, March 11-17, 5 deaths

Mexico: City of Mexico, April 1 8, 4 cases, 3 deaths

Russia Moscow, March 18 25, 4 cases 4 deaths

Straits Settlements: Singapore, Feb 25 March 4 1 death

Uruguay. Montevideo, Feb 6 24, 56 cases, 8 deaths

YELLOW FEVER

Brazil Rio de Janeiro, March 19 26, 14 cases, 3 deaths

Ecuador Guayaquil, March 21 28, 4 deaths

Panama: Colon, Jan 23 April 2 6 cases, 3 deaths; Panama, Jan 1 March 28, 44 cases, 18 deaths

CHOLERA

India: Calcutta, March 11 18, 30 deaths

PLAGUE—INSULAR.

Philippine Islands: Manila, Feb 18 25 1 case, 2 deaths

PLAGUE—FOREIGN

Africa: Cape Colony March 4 11 4 cases 3 deaths

Arabia Aden, March 17 24, 45 cases, 34 deaths

Argentina: San Nicolas, March 18 30, present

Brazil Rio de Janeiro, March 19 26, 1 case, 1 death

Chili: Atacama, March 16, present: Copiapo March 15, present; March 16, Port Mont, present: Valparaiso present

India: General, March 4-11, 52 250 cases, 45 541 deaths: Bombay, March 14 21, 648 deaths: Calcutta, March 11-18, 405 deaths; Karachi March 12 19, 102 cases 91 deaths; Rangoon, March 18 increasing

Peru March 12 19, Chiclayo 23 cases 10 deaths; Guadalupe 1 case, 1 death: Lambayeque, 1 case: San Pablo, 2 cases 4 deaths; Mollendo 11 cases 4 deaths; Lima, 2 cases, 2 deaths

# *Medical Organization*

## Kansas.

Jefferson County Medical Society.—Subject to call, 13 physicians of the county met at Oskaloosa, March 15, adopted the standard constitution and by-laws and perfected the organization of a county medical society, electing the following officers: Dr. Albert G. Smith, Oskaloosa, president; Dr. Edgar C. Rankin, McLouth, vice president; Dr. W. A. Aitken, Valley Falls, secretary; Dr Al. D. Lowry, Ozawkie, treasurer; Dr. George W. England, Valley Falls, delegate to state society, and Drs. Stephen E Smith, Grantville: J. R Mains, McLouth, and Samuel Johnston, Oskaloosa, censors.

### Michigan.

Mecosta-Newaygo Medical Society.—At a special meeting of the medical societies of these two counties, held at Big Rapids, January 13, consolidation was effected under the above title. Dr. Benjamin F. Brown, Morley, Mecosta County, was elected president; Dr. Willard A. Whitney, Big Rapids, Mecosta County, first vice-president; Dr. John W. McNabb, Fremont, Newaygo County, second vice-president, and Dr. Arthur A. Spoor, Big Rapids, secretary-treasurer.

First Councilor District Medical Society.—The first annual meeting of this society was held in Detroit, February 20. Dr. Leartus Connor, Detroit, district councilor, called the meeting to order. Dr. Charles T. Southworth, Monroe, was elected temporary chairman, and Dr. Guy L. Connor, Detroit, temporary secretary. The committee on organization recommended that the executive committee be composed of the secretaries of the various county societies, and that the president and secretary of the district society be the president and secretary of the medical society of the county in which the meeting is held.

### Missouri.

Cole County Medical Association.—On April 4 a meeting of the association was held in Jefferson City, at which Dr. J. N. McCormack delivered an address on standard reorganization.

Jasper County Medical Society.—The society held its regular meeting at Joplin, April 8, with a large attendance from surrounding counties. Dr. J. N. McCormack spoke on medical organization. The meeting closed with a banquet at St. John's Hospital.

Bates County Medical Society.—Pursuant to call of the president, Dr. Edward N. Chastain, Rich Hill, a special meeting of this society was held in Butler, April 10, to hear addresses on organization by Drs. J. N. McCormack and Jabez N. Jackson, Kansas City, president of the state association.

Montgomery County Medical Society.—Physicians of the county met at Wellsville, April 12, and organized a county medical society on the standard plan, with the aid of Dr. Woodson Moss, Columbia, councilor for the sixth district. Dr. J. Luther Jones, Jonesburg, was elected president; Dr. M. M. Wheeler, High Hill, secretary, and Dr. George E. Muns, Montgomery City, treasurer.

Vernon County Medical Society.—Physicians of the county met at Nevada, April 8, and after listening to an explanation of the plan of organization by Dr. J. N. McCormack, formed a county society and adopted the standard constitution and by-laws. The following officers were elected: President, Dr. Henry C. Jarvis, Schell City; vice-president, Dr. Edgar A. Dulin, Nevada; secretary-treasurer, Dr. Thomas B. Todd, Richards; censors, Drs. W. T. Bohannon, George O. Wilson and Samuel A. Johnson, all of Nevada.

Clinton County Medical Society.—Physicians of the county met at Plattsburg, April 11, and after talks by Dr. Elijah H. Miller, Fayetteville, councilor of the third district, and Dr. J. N. McCormack, organized a county society on the standard plan and elected the following officers: President, Dr. John Sturgis, Perrin; vice-president, Dr. Stephen D. Reynolds, Gower; secretary-treasurer, Dr. E. A. Colley, Plattsburg; censors, Drs. Robert W. Rea, Plattsburg; John C. Starks, Gower, and R. J. Woods, Trimble, and delegate to the state association, Dr. Robert W. Rea, Plattsburg.

Andrew County Medical Association.—At a meeting of the physicians of the county held at Savannah, April 12, Dr. J. N. McCormack addressed the meeting on organization, and a county association was formed on the standard plan with the following officers: Dr. David B. Bryant, Savannah, president; Dr. Oscar T. Bloomer, Rochester, vice-president; Dr. Clarence O. Jefferies, Savannah, secretary-treasurer; Dr. Elijah C. Bennett, Bolckow, delegate to the state association; Dr. Warren E. Danley, Avenue City, alternate, and Drs. William H. Bailey, Savannah; William M. Kerr, Savannah, and Ezekiel Houston, Savannah, censors.

Livingston County Medical Association.—This association was reorganized at Chillicothe, March 22, with the following officers: Dr. David Gordon, Chillicothe, president; Drs. William A. Swope, Wheeling, and O. L. Alberty, Dawn, vice-presidents; Dr. John F. Cherrington, Chillicothe, secretary; Dr. Byron N. Stevens, Chillicothe, treasurer; Dr. G. W. Hutchison, delegate to the state association, and Dr. Reuben Barney, alternate.——Representative physicians from Livingston, Daviess, Mercer, Caldwell, Grundy, Linn, Sullivan and Carroll counties met with the association at Chillicothe, April 13, listened to an address by Dr. J. N. McCormack on the standard plan of organization and the benefits to be derived therefrom, and discussed the advisability of adopting this plan.

### Texas.

Lavaca County Medical Association.—This society has been reorgnaized at Hallettsville with the following officers: Dr. J. D. Gray, Shiner, president; Dr. Absalom A. Ledbetter, Hallettsville, vice-president; Dr. Arthur L. Fuller, Hallettsville, secretary-treasurer, and Dr. William E. Drisdale, Yoakum, delegate to the state association.

Limestone County Medical Association.—Dr. Garland B. Foscue, Waco, councilor of the twelfth district, met with the physicians of the county at Groesbeck, March 23, and effected a permanent county organization on the standard plan, with the following officers: Dr. Reuben B. Jackson, Mexia, president; Dr. William W. Brown, Groesbeck, vice-president, and Dr. George W. Stone, Thornton, secretary-treasurer.

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### Georgia Adopts Reorganization Plan.

The Medical Association of Georgia began its annual session at Atlanta, Wednesday, April 19, 1905, with the largest attendance in its history, and a program covering three days of interesting scientific work. The meeting began its labors on the last day of the Anti-Tuberculosis League in the same city, and this contributed to the increased attendance, but more of it was probably due to the fact that it was known that the proposed new constitution and by-laws, which had been pending and widely discussed during the past year, would come up for final adoption or rejection.

The program made the matter of reorganization a special order for Thursday evening. As the constitution and by-laws had been published in the transactions, and had been made the subject of much good-natured controversy for months, much interest had been aroused, and all were ready for the free discussion of the questions at issue. This was pitched on the high plane befitting the important subject and the high character of the disputants on both sides. After this full and free discussion the proposed constitution and by-laws were adopted, and on the following day the state was divided into eleven councilor districts, with the following councilors as leaders of the work of organization in each:

First District, John S. Howkins, Savannah; Second District, William L. Davis, Albany; Third District, R. E. Lee Barnum, Richland; Fourth District, W. L. Fitts, Carrollton; Fifth District, Edward C. Davis, Atlanta; Sixth District, Mallie A. Clarke, Macon; Seventh District, Alfred F. Calhoun, Cartersville; Eighth District, Samuel C. Benedict, Athens; Ninth District, William B. Hardman, Commerce; Tenth District, Wyman W. Pilcher, Warrenton; Eleventh District, Jefferson D. Herman, Eastman.

William Z. Holliday, Augusta, was elected president; Roberts P. Izlar, Waycross, first vice-president, and Charles T. Nolan, Marietta, second vice-president, and Louis H. Jones, Atlanta, was re-elected secretary and treasurer for a term of five years. The next annual meeting will be held at Augusta, April 18-19, 1906.

Georgia has a strong profession, and with the interest which has been aroused in the work of local organization by the discussion during the year and at this meeting, insuring the councilors the cordial co-operation of the profession in probably a majority of the counties at the outset, the gain in membership and otherwise promises to equal that secured under this plan in any other state.

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### The Purpose of the County Society.

"On other occasions," says *Northwest Medicine*, "we have urged the formation of county societies where they do not now exist and where a sufficient number of physicians is available for their organization. But the most important field for united effort lies in the cities of the state, where the physicians are found in large numbers and where the county societies enroll only a portion of them. It seems to us that the most important work for these societies for the coming year is to gather into their membership every eligible, reputable physician in their midst. Thus will be established a powerful and influential body that will be in a position to secure local and state legislation in the interests of public health and sanitation beside conserving the interests of the medical profession. Whenever, by reason of enlarged membership, the society becomes unwieldy for successful scientific work, it will be timely to establish sections of smaller bodies of physicians possessing similar interests where special work can be conducted. But first of all let us assemble in the county society and make that the unit of organization."

# *Society Proceedings*

## COMING MEETINGS.

American Medical Association, Portland, Ore, July 11-14, 1905.

Nebraska State Medical Association, Beatrice, May 2-4.
American Proctological Society, Pittsburg, May 5-6.
American Therapeutic Society, Philadelphia, May 4-6.
Utah State Medical Association, Salt Lake, May 9-10.
Medical Society of Nevada, Reno, May 9-10.
Louisiana State Medical Society, New Orleans, May 9-11.
New Mexico Medical Society, Las Vegas, May 10.
Ohio State Medical Association, Columbus, May 10-12.
American Ophthalmological Society, Boston, May 11-12.
American Association of Physicians, Washington, May 16-17.
Arkansas Medical Society, Little Rock, May 16-17.
Illinois State Medical Society, Rock Island, May 16-18.
Missouri State Medical Assn., Excelsior Springs, May 17-18.
Montana State Medical Association, Butte, May 17-18.
Iowa State Medical Society, Des Moines, May 17-19.
New Hampshire Medical Society, Concord, May 18-19.
Medical Society of the State of N. Carolina, Greensboro, May 23-25.
Connecticut Medical Society, Hartford, May 24-25.
North Dakota State Medical Society, Grand Forks, May 24-25.
American Gynecological Society, Niagara Falls, N. Y., May 25-27.

## AMERICAN ANTI-TUBERCULOSIS LEAGUE.

*Annual Session, held in Atlanta, Ga., April 18-19, 1905.*

The President, Dr. George Brown, Atlanta, Ga. in the Chair.

The governor of Georgia welcomed the delegates on behalf of the state: Hon. Clark Howell, on behalf of Atlanta; Dr. Willis F. Westmoreland on behalf of the State Board of Health; Dr. William Perrin Nicholson on behalf of the Georgia State Medical Association, and Dr. John Olmsted on behalf of the Atlanta physicians.

### President's Address.

In the opening address, Dr. George Brown, the president, welcomed the delegates, paying them an eloquent tribute as men who for love of humanity were willing to sacrifice time and money to come to this meeting that they might help along the great work of the prevention of tuberculosis. Their mission is to plead that tuberculous sufferers might have better treatment, better laws and better attention.

### Tuberculosis in the Negro.

Dr. Searle Harris, Union Springs, Ala., read the first paper, in which he considered the cause and prevention of tuberculosis in the negro from a sociologic standpoint. He held that the great death rate from consumption in the negro race was due to lack of sanitation and to improper modes of life.

### Susceptibility of Children to Disease.

Dr. William S. Alexander, Oxford, Ohio, considered the susceptibility of children of tender ages to disease, and emphasized the care that should be exercised in rearing them until they come to an age at which they can offer vital resistance. In the discussion of this paper the question of the heredity contagiousness or infectiousness of tuberculosis was brought up and the advocates presented their views which were strongly convergent.

### The Tuberculous Woman.

Dr. Mary Hawes, Denver, in her paper on "The Tuberculous Woman in Colorado," made it plain that a climatic prescription was not the desideratum. It made a difference whether the consumptive woman in the west was sent there with the disease or whether she contracted the disease after she came there. The author believed that temperament, age, financial condition, etc., had rarely been given the thought which they required by eastern physicians.

### State Control.

Dr. Robert E. Conniff, Sioux City, Iowa, in his paper on "State Control of Tuberculous Diseases," suggested the necessity of isolation of tuberculous patients and asserted that health boards assume control of other diseases far less fearful and less deadly than tuberculosis.

### The Physician's Duty in Tuberculosis.

Dr. Chase P. Ambler, Asheville, N. C., read a paper on "The Physician's Paramount Duty to the Patient and Family in Tuberculosis." He averred that tuberculosis was not the fatal disease that many had been taught to believe, and declared that too many physicians were in the habit of keeping the truth regarding the disease from tuberculous patients. He asserted that it was within the province of the family physician to educate the family to the necessity of conditions existing in tuberculosis cases. With proper care the disease could be handled and the knowledge of its existence was better for all concerned. He insisted that:

1. Tuberculosis is not the fatal disease commonly believed.
2. While communicable, it can practically be made innocuous by the proper course on the part of the patient.
3. The chief cause of the large mortality is late diagnosis.
4. Late diagnosis is caused by indifference of patient to early symptoms and carelessness on the part of the physician consulted.
5. By thorough, systematic instruction of the patient better results can be accomplished than by medication.
6. Instructions of patient, family and friends and close observance on their part of the rules laid down will practically rob the disease of its method and means of extending.

### To Overcome Spread of Tuberculosis.

Dr. James M. Masters, Newport, Tenn., presented a paper entitled "How Conditions Chiefly Responsible for the Spread of Tuberculosis Can Be Overcome." He laid especial stress on expectoration and the great harm it did in the home as well as in public places and on sidewalks, and commended the various anti-expectoration ordinances passed by muncipalities. He said that all spitters should be required to carry cups, that handkerchiefs should not be used by consumptives, and that the bacilli are expectorated and not exhaled.

### Importance of Disinfection.

Dr. Edward L. McGehee, New Orleans, a member of the State Board of Health, enlarged on the importance of disinfecting any apartment occupied by tuberculous subjects. He demanded thorough disinfection of every room and every house which had been the home of a tuberculous patient, and demonstrated that germs of the disease could lie dormant in a room for years and then, when disturbed, could enter on a new campaign of disease and possibly of death. He stated that by disinfection only could the germs be annihilated.

Dr. Quitman F. Kohnke, New Orleans, demanded disinfection, but doubted the wisdom of a compulsory law.

### The Creed of the League.

The committee on resolutions submitted its report, in which it presented the following preamble and resolutions as the creed of the league:

1. Tuberculosis is communicable, not inherited. A predisposition to this disease may be transmitted from parent to child, but not the disease itself.
2. Tuberculosis is curable. When the presence of the germ is early recognized, it may be destroyed in the individual by the adoption of proper remedial measures.
3. Tuberculosis is preventable. Two factors are essential to its development. First, the presence of the germ, and, second, a soil favorable for its development. To some extent one or both of these factors are subject to intelligent control. The disease is, therefore, to this extent preventable.
4. We respectfully recommend the appointment by this league of three physicians in each state, whose duty it will be to form state antituberculosis leagues, to invoke the aid of the profession and the state in the crusade against this dreadful disease.

*Resolved*, That this league respectfully transmits a copy of these resolutions to the secretary of each state society to be presented to the societies for consideration and action thereon, and asking their co-operation.

*Resolved*, That the object sought to be accomplished by this congress of the American Anti Tuberculosis League is to present to the American public practical and practicable methods and measures to avoid the infection of tuberculosis, to suppress its spread, and in furtherance of this end to endeavor by education to encourage a healthful condition of living, through personal hygiene and domestic sanitation.

*Resolved, further*, That a committee be appointed by the chair to prepare concise and forcible leaflets, tracts, pamphlets and other literature intended for the information of the public, on the subject of tuberculosis and the manner in which it is usually acquired, how to prevent its spread by proper living, and proper sanitary care of the patient and his dwelling, and for the presentation of this subject interestingly, practically, understandingly. Such literature to be distributed widely throughout the United States in home, store, workshop and factory.

*Be it also resolved*, That the committee so appointed shall be authorized to solicit funds by popular subscription to defray the expenses for carrying out the purpose of this resolution.

### Presentation to President.

At the opening of the third day's session Dr. Walter F. Boggess, Louisville, presented to Dr. George Brown, the president, on behalf of the league, a three carat diamond pin, set with emeralds.

### Election of Officers.

The officers selected for the coming year are as follows: President, Dr. Robert E. Conniff, Sioux City, Iowa; vice-presidents, Drs. T. V. Hubbard, Atlanta, Ga., Arthur H. Van Dyke, Atlanta, Ga., Chase P. Ambler, Asheville, N. C., Charles A. Snodgras, St. Louis, Mo., Edward L. McGehee, New Orleans, La., Mark Millikin, Hamilton, Ohio, Preston M. Hickey, Detroit, Mich., Urbane V. Williams, Frankfort, Ky., Joseph Y. Porter, Key West, Fla., Gray of New Jersey, and William J. McMurray, Nashville, Tenn.; secretary and treasurer, Dr. Walter N. Vilas, El Paso, Texas.

### Entertainment.

On the evening of April 18, the delegates were entertained at a reception at the Piedmont Hotel by Dr. George Brown, the president, the officers of the league, and the ladies reception committee.——On the afternoon of the second day the delegates were the guests of Dr. Arthur H. Van Dyke, chairman of the local reception committee, at an old-time Georgia barbecue, at the Cold Springs 'Cue Club.

The next annual session will be held in El Paso, Texas.

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## TENNESSEE STATE MEDICAL ASSOCIATION.

*Seventy-second Annual Meeting, held at Nashville, April 11-13, 1905.*

(*Continued from page 1307.*

### Melancholia.

Dr. S. T. Rucker, Memphis, said that heredity is encountered in this disease in about 50 per cent. of the cases. Ill health, mental strain, worry over financial affairs, domestic troubles, and disappointment in love are also factors largely responsible for most cases. Auto-infection undoubtedly plays a considerable rôle in some cases. Pregnancy in primiparæ is an aggravating cause, and generally begins about the third or fourth month. The puerperal state does not so often produce melancholia as pregnancy and lactation. Several forms of agitated melancholia are occasionally associated with chronic alcoholism. The sobering up after a prolonged spree or debauch will precipitate an acute attack of melancholia, not infrequently ending in suicide. The onset of melancholia is almost always gradual. At first, it may be only a feeling, which takes no definite shape, and there may be no delusions. Every thought and everything in the environment had a sorrowful color. When questioned, the patient will simply say that he feels depressed or has the blues. The morbid feeling constitutes the disorder. The symptoms vary from a simple state of dejection to a state of profound depression, in which the patient is either paralyzed by the dreadful nature of his concepts, or is thrown into a state of agitated suffering, associated with marked precordial distress and peculiar pains in the back or top of the head. The author mentioned three varieties of melancholia, the acute, subacute and chronic. There is no known pathologic anatomy for melancholia. It is considered a functional disease of the brain. Melancholia can hardly be mistaken for acute mania, as in the former there is a slowing of the thought process, while in the latter there is an accelerated flow of ideas, and the maniac is unusually cheerful and talkative. The prognosis in melancholia is very favorable, inasmuch as fully 90 per cent. of the cases recover. Thorough investigation, speedy separation from relatives and friends, and an early commitment to an institution for treatment should be the rule in this class of patients.

#### DISCUSSION.

Dr. M. Campbell, Knoxville, said that melancholia agitata and simple melancholia are symptoms of one and the same disease. Melancholia itself is not, strictly speaking, a mental disease, but a symptom of a pathologic state which underlies the symptom of depression which is most prominent, whether it be an organic or functional disease. A large percentage of the cases of melancholia that are sent to hospitals for the insane do not recover. He does not think half of them get well. In treatment, he suggested a change of scene, getting away from the conditions that produced the disease, building up the patient physically and giving hypnotics to produce sleep, warm baths, etc.

Dr. W. J. Breeding, Taylors, related the history of a woman, 42 years of age, mother of eight children. An aunt in the family was insane. He saw her in the sixth week of pregnancy, at which time she was in a depressed condition. He made a diagnosis of hysteria. The woman recalled her experience during a former pregnancy, and said she could not live through this one, believing she would have a repetition of vomiting and nausea. There was no pathologic condition. She had numerous delusions up to the seventh month of pregnancy, when a miscarriage occurred; the fetus was badly deformed. It was thought she would now recover, but in two weeks she lapsed into a condition of melancholia, eked out a miserable existence for two or three months, and then committed suicide by hanging.

Dr. C. P. McNabb, Knoxville, cited two cases, in neither of which the family consented to sending the patient to a hospital. One patient had three attacks of melancholia, with three partial recoveries. The other was now in her third attack.

Dr. A. F. Paschall, Crossland, thinks that in the case of young men advertising literature by quacks plays an important rôle in the causation of melancholia.

Dr. S. S. Crockett, Nashville, said there is a popular impression that there is an insanity which develops in puerperal women that differs from other forms of the disease. There never was a greater mistake. Pregnancy and lactation should be regarded as one factor which may produce insanity in a woman who is otherwise predisposed to it.

Dr. Louis Leroy, Nashville, agreed with Dr. Crockett that there is no special type of insanity peculiar to the pregnant woman. The condition has been recognized as an etiologic factor, possibly as the exciting cause of the disease, to such an extent that, even though incorrect, from the standpoint of pathology, clinically the term puerperal insanity is recognized both professionally and by the laity. The probability is that the causes are few in number: First, that the shock to the nervous system resulting from the profound changes occurring in pregnancy may bring on an attack which is impending or accentuate the nervous disturbance otherwise held under control. On the other hand, many cases are the result of auto-intoxication.

### Diagnosis of Kidney Diseases.

Dr. Louis Leroy, Nashville, said that in renal diseases more than in others, accurate discrimination in diagnosis is important. Failure to distinguish between parenchymatous or interstitial nephritis, or to make a snap diagnosis of nephritis from a trace of albumin without further investigation of general clinical conditions and the exclusion of some other lesions microscopically, or a repeated examination, in the absence of casts, microscopically to determine some cyclic or functional albuminuria, may render the physician a subject of ridicule for which years of careful and conscientious work can scarcely atone. While malformations of the kidneys are of great rarity, their importance in surgical cases should cause the possibility to be constantly borne in mind. The absence of one kidney or fusion of both into one mass should be considered and the presence of an organ on both sides determined, if possible, while debating the admissibility of operative procedures. It is not always possible, and frequently quite difficult, to determine the presence of the kidney when in normal position, either by percussion or palpation, especially in patients with thick abdominal walls, or large, well-developed spinal muscles. In such cases the presence of the organ may be determined by the *x*-rays, or both ureteral orifices may be determined by a cystoscopic examination, in which case the presence of two kidneys may be considered as assured, the possibility of a single kidney having two pelves and ureters being so slight as to be negligible. In case of movable kidney, however, it is usually possible to recognize the condition by palpation, sometimes assisted by percussion, and one may sometimes be surprised to find no clinical symptoms associated. With some cases the kidney readily returns to its normal position, where it remains for some time, and it may be necessary to make several examinations at different times before finding it when displaced.

### Perinephritic Abscess.

Dr. W. A. Bryan, Nashville, discussed the differentiation of this form of abscess from other abdominal conditions, and reported a case. Mr. F., locomotive fireman, aged 28, has had no evidence of disease since childhood. In August, 1904, patient received a superficial burn on his left olecranon, which became infected, but healed kindly. After a few days an abscess developed with the burn. This was opened and healed. A few weeks later three or four other abscesses formed around the site of the original abscess, were opened, or ruptured, and healed. In October he began to have pains in the right lumbar region, and soon afterward quit work and went to his bed. Pain in the right side was described as a "catch"; his back ached constantly. He became distinctly septic. Liver dullness was elevated one inch in the right nipple line; right side one and one-half inches larger than the left. Enlargement of the right loin was very perceptible, and fluctuation was present; pus on aspiration; urine normal. December 15, 1904, the author operated, removing 24 ounces of pus. Patient improved, but had pain again from the beginning after the operation in his left side. Aspiration was resorted to, pus was found, and two weeks from the first operation a second one was performed, removing eight ounces of pus from the left side, after which the patient made an uninterrupted recovery and has since gained forty pounds. The pus gave a pure culture of staphylococcus aureus. There was no connection between the two abscesses.

*(To be continued.)*

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# *A Postoffice Exposure*

## FRAUDULENT USE OF U. S. MAILS.

### Circuit Court Decision in Case Denying Use of Mails to Lost-Manhood Advertiser.

The record in a case recently decided in the U. S. Circuit Court for the Northern District of Illinois by Judge Christian C. Kohlsaat will be found of interest to our readers. We give first an abstract and then the full text. In the text the subheadings have been added by The Journal.

For some time prior to September, 1903, T. B. Ganse had been engaged in his own name, or under the name of the Chicago Cure Company, in the mail order business for advertising, distribution and sale of certain remedies, purporting to be adapted to the permanent and effective cure of sexual diseases of men. Following a number of complaints received by the U. S. Postoffice Department, an investigation of the business was begun, with the assistance of Dr. H. W. Wiley and staff of the Department of Agriculture.

On Sept. 18, 1903, Mr. Ganse was notified that charges were pending against him to the effect that he was engaged in conducting a scheme for obtaining money through the mails by the means of fraudulent pretenses, in violation of the postal laws. A memorandum of the charges was sent him, and Oct. 12, 1903, was set for a hearing. The advertiser filed a sworn statement, in which he asserted the truthfulness of all representations he had made, and asserted that the curative qualities of his remedies had been truly stated. At the hearing of the complainant, correspondence and samples of all circulars and advertising matter, etc., were gone over.

The next procedure was a full consideration of all the data by the Assistant Attorney General of the United States, and the conclusion was reached that this Chicago Cure Company was "using the mails for obtaining money by means of false and fraudulent pretenses as to a medicine incapable of producing the benefits claimed." This report was submitted to the Postmaster General, and he duly issued a fraud order, June 2, 1904.

From this fraud order, Mr. Ganse appealed. The case was entitled, "T. B. Ganse, vs. F. E. Coyne, Postmaster, etc.," F. E. Coyne being the postmaster of Chicago, and the local authority most concerned in the enforcement of this fraud order against the advertiser. The point to be decided was apparently this: Did the officials of the government give a full and judicial hearing to all possible necessary evidence to establish the point of fraud on which the order was based.

The entire evidence of the government's investigations and of all the procedures that had been taken were given consideration by Hervey W. Booth, special master in chancery, who was ordered to report to the judge of the Circuit Court. We here acknowedge the kindness of Mr. Booth and of the U. S. District Attorney, S. H. Bethea, in furnishing a copy of the master's report, and in giving further information about the disposition of the case. This report was approved by the Federal Circuit Court, which procedure involved the dismissal of the appeal of the complainant, Mr. Ganse, for want of equity. When the status of the case had been determined thus, Mr. Ganse was indicted for fraudulent use of the mails, he pleaded guilty, and the matter was continued for sentence later.

### IN THE U. S. CIRCUIT COURT FOR THE NORTHERN DIST. OF ILLINOIS, NORTHERN DIV., CHANCERY: MASTER'S REPORT.

*To the Hon. Christian C. Kohlsaat, Judge of said court:*

The undersigned, who was heretofore by order duly entered herein, appointed special Master in Chancery to assist the standing master, William M. Booth, to whom said cause was referred by order entered therein on the 17th day of June, 1904, to take proofs and report the same together with his conclusions, having been by order entered on Sept. 19, 1904, on account of the death of said standing master, given the same power and authority to make report of proofs and findings of law and facts as were given said standing master, respectfully reports as follows:

The undersigned as such assistant master, prior to the death of said standing master, and under his directions, caused the parties in said cause to attend before him on the 27th day of June, 1904, and on various other days subsequent thereto, as will more fully appear from the transcript of the record which is filed herewith, and thereon certain oral and documentary evidence and certain physical exhibits were adduced on behalf of the respective parties; and certain other proceedings were had; all of which documentary evidence and exhibits, together with a full, true and correct transcript and report of said oral evidence is filed herewith, and constitutes all the evidence of every description produced before the undersigned master on behalf of either of the parties to said cause.

And thereon, afterward, oral and printed arguments were submitted to said master by counsel for the respective parties, and the master, having considered the said arguments, and the said evidence and proceedings before him, has reached the following findings and conclusions.

#### I.—IDENTITY OF THE PARTIES.

The complainant, T. D. Ganse, is a citizen of the state of Illinois, residing in the said Northern District of Illinois, in the said Northern Division thereof; and the defendant, F. E. Coyne, is the postmaster of the United States in and for the city of Chicago, in said Northern District of Illinois, duly commissioned and acting as such.

#### II.—THE ISSUING OF THE FRAUD ORDER.

In September, 1903, and for some time prior thereto, the complainant had been and was engaged, either in his own name or by the name and style of "Chicago Cure Company," in a business in the nature of a mail order business for the advertising, distribution and sale of certain remedies purporting to be adapted to the permanent and effective cure of sexual diseases of men, the principal office of which business was located at said city of Chicago. In distributing his advertising matter in search of patrons, and in communicating with and sending his preparations to customers, and in collecting from them payment for medicines furnished, Ganse made extensive use of the United States Postoffice establishment and of the United States Mails.

Prior to September, 1903, various communications in the nature of complaints of the business conducted by Ganse had been received by the United States Postoffice department, and through its proper officials said department had been conducting an investigation of such business. On September 18, 1903, by direction of the Postmaster General, the complainant was notified that charges were pending against him in the Postoffice Department at Washington, to the effect that he was engaged in conducting a scheme or device for obtaining money or property through the mails by means of false or fraudulent pretenses, representations or promises, in violation of Sections 3929 and 4041 of the United States Revised Statutes, and a memorandum of such charges was at the same time submitted to him, and a day fixed for considering the charges and complainant's reply thereto; in which memorandum the complainant's business was described as a scheme to effect the sale at an enormous profit of a combination of drugs palmed off as a wonderful discovery, by falsely representing its curative powers.

To this charge complainant filed a sworn statement in which he asserted the truthfulness of all representations made by him, and that the curative qualities of his remedies had been truly stated.

The matter came on for hearing at Washington, D. C., before Edwin W. Lawrence, the acting assistant attorney general, on Oct. 12, 1903, at which hearing the complainant was represented by his counsel. On the hearing there was submitted to the assistant attorney general various proofs and exhibits adduced in support of and in disproval of said charge, such proofs consisting in part of the several complaints before the department and correspondence connected therewith (being government's exhibits Nos. 11 to 44), also the postoffice inspector's reports in the case; also formulas submitted by complainant purporting to show the composition of his various remedies; also a complete file of all circulars and advertising matter used by the complainant; various circulars that had been distributed by him through the mails to certain customers; a number of testimonials submitted by complainant said to have been received from patrons who had been treated by him. and various medical authorities cited by complainant's counsel in support of his contention of the efficacy of the remedies.

Thereafter the government caused samples of the complainants' remedies to be procured and submitted to the Department of Agriculture for analysis. Some of these samples were already in the possession of the government, having been received from one of the complaining parties above referred to; other samples were obtained by Inspector McAfee of the Postoffice Department. through correspondence with the complainant under an assumed name. There was some delay in completing the analysis owing to the necessity of procuring these additional samples, the quantity first submitted to the Agricultural Department having been insufficient for a satisfactory analysis. Ultimately the analysis was finished, and a report of the results arrived at was submitted to the Postoffice Department, which report is in evidence before the master as government's exhibit No. 34.

Thereafter, at the request of the Postoffice Department, Dr. Wyley of the Agricultural Department furnished to the Postoffice department his opinion in writing of the efficacy of the samples of Robusto analyzed, which opinion, omitting the formal beginning and ending, is as follows:

> I beg to acknowledge receipt of your communication of the 17th inst., asking for a further statement in regard to the alleged remedy known as "robusto." I have also looked over carefully the circulars of various kinds issued by the company making this alleged remedy. Many forms of this remedy are mentioned in the circulars which we have examined. We have not had samples of "robusto" course for external use, special robusto vitalizer and developer, nor any of the forms of the alleged remedy described on the back of the reduction check *No. 159670, marked in blue* pencil, No. 13. I, therefore, can give no opinion respecting the efficacy of any of these substances. I beg, however, to state that, in my opinion, the samples of "robusto" which we have examined, and the results of which examination were transmitted to you in my letter of April 22, 1904, can not possibly have the properties ascribed to them in the advertising circulars of the Chicago Cure Company which you have submitted for examination. In my opinion, these remedies are practically inert. The circulars are calculated to excite groundless fears in the minds of those reading them and to develop false hopes of the benefits which are promised. Any good effect which may be noted in the patient as a result of the application of this alleged remedy is probably due to the mental condition noted above, and not to the efficacy of the remedy itself.

The case was finally considered by Mr. Goodwin, the Assistant Attorney General, and his assistant, Mr. Lawrence, on all of the above proofs, analyses, communications, formulas, testimonials submitted and medical authorities cited by Ganse's counsel, and also on evidence showing numerous other concerns selling alleged cures for lost manhood and claiming to use practically the same drugs as those shown in Ganse's formulas; and a conclusion was reached by them which was embodied in a memorandum and recommendation signed by the Assistant Attorney General, and submitted by him to the Postmaster General. This memorandum, omitting its formal beginning and conclusion, is as follows:

> This company was duly called on, Sept. 18, 1903, to show cause before this office by Oct. 12, 1903, why it should not be denied the further use of the mails in the conduct of its business, which was charged to be fraudulent within the meaning of the above-mentioned statutes. The company, in response thereto, submitted a written answer, as well as appearing by its attorney, W. Knox Haynes, Esq., of Chicago, on the day fixed for hearing, to supplement its written answer by oral argument. Careful consideration has been given this case, and samples of the company's alleged cures have been submitted to the Department of Agriculture for chemical analysis and advice.
>
> This company has for sale what it claims is a cure for "nervous debility and sexual inability," etc. To induce the unfortunate to become its patients for the treatment of such conditions, the company makes many extravagantly false and misleading representations and statements regarding the properties and efficacy of its alleged remedies. A few of these are quoted below:
>
> "NEW LIFE!! NEW HOPE!! ROBUSTO: A MAN BUILDER. WHAT ROBUSTO DOES: Robusto is a combination of remedies prepared on a scientific plan far in advance of the usual stimulating method. It is a system so planned that its powers and effectiveness increases as it progresses, until a cure is established upon a solid basis that will last for life. Those who are looking for a temporary stimulant will please pass us by. We aim to do PERMANENT GOOD, and in no case will we do injury. ROBUSTO is effective in all cases of WEAKNESS, no matter what the cause. It will BUILD UP any man who is run down, whether from sickness, overwork, dissipation, or whatever else. If you suffer from temporary exhaustion or brain fag, ROBUSTO will fit you for the duties which must be met. It has saved the day and brought business success to many a man. ROBUSTO fills out thin men, gives calm nerves, and imparts self-reliance. ROBUSTO is particularly recommended in all forms of nervous debility and sexual inability. It will stop the life waste attendant upon spermatorrhea, and restore health to the entire sexual organism. It is particularly effective in cases of atrophy, lack of power, etc. And in this respect we challenge the world for its equal. In cases of Varicocele, Hydrocele, Stricture, Gleet and Prostatic Irritation, ROBUSTO seems to have a soothing effect upon the irritated parts, while its strength-building qualities will build up such a vigorous state of health that nature will have power to eliminate the diseased tissues and establish normal health. Even in the most severe cases we suggest a little caution, and the *use of ROBUSTO before resorting to instruments* which are likely to carry the disease still deeper. We claim that the ROBUSTO progressive plan is as far above the old fogie drug stimulants and poisons as usually administered as sunshine is ahead of darkness. We need not go into the usual harrowing and sometimes indecent details. You will know whether or not you are up to the mark, and if you find yourself failing, or even if you have given up hope, just give ROBUSTO a trial upon the liberal terms which we name, we taking the risk. We firmly believe that there is not a man living, young or old, who is so weak that ROBUSTO will not revive him; none so strong that it will not benefit, if used at the right time. ROBUSTO will give you rich, red blood, strong nerves. active brain, and all that goes to make ATTRACTIVE MANHOOD.
>
> "ROBUSTO is NOT a stimulant, but a strength-building nerve food, with added ingredients to eliminate disease, restore the tissues and establish normal manhood upon a firm foundation.
>
> "ROBUSTO is a fixed method of treatment, consisting of the most potent remedies known to science, so combined that they increase in power and effectiveness as the system progresses.
>
> "ROBUSTO is a tonic for overworked or dissipated men. It stops life waste and restores proper strength and development.
>
> "ROBUSTO fills out thin men, brings calm confidence, clear complexion, and all that goes to make attractive manhood.
>
> "ROBUSTO is a true bracer for young men, married men, middle-aged and old men. It will revive you and put new sunshine into your life.
>
> "ROBUSTO is in every sense A MAN BUILDER.
>
> "ROBUSTO is the grandest remedial plan ever devised for the relief of SEXUAL DEBILITY. It is a combination of agencies, prepared on a fixed system, which increases in power as it progresses. The test course is merely the commencement of the [illegible] process, to be consummated by the addition of other [illegible] which act in harmony to establish normal health [illegible] or reaction.
>
> "ROBUSTO will strike at the foundation of your trouble and rescue you from the SEXUAL SUICIDE which threatens.
>
> "You have got to *TOUCH THE SPOT AND HEAL IT* and this is accomplished by our PROGRESSIVE STRENGTH BUILDING PLAN. which enters into your entire system, vitalizing every nerve and fiber of your being, until almost imperceptibly and before you realize it you find yourself A NEW MAN.
>
> "During this process the sexual organs will become properly developed and strengthened. Your will power will grow, so that you will have proper SELF-CONTROL: in cases complicated with varicocele. stricture, prostatic irritations, etc., the diseased tissues will be eliminated, the irritation soothed and a healthy tone established. The nerves will become calm. the brain active. and all that miserable condition of sympathetic health, often complicated by constipation, stomach distress, liver disease and whatever else, will gradually disappear. to be replaced by the Magnetic Vigor and Self-Reliance of PERFECT MANHOOD."
>
> Samples of the company's remedies submitted to analysis by the Bureau of Chemistry of the Department of Agriculture were found to. contain about 50 per cent. sugar, with the remainder composed of the active constituents, spanish flies, red pepper,

> ferrous carbonate, and a bitter material which could not be identified. The active agent of these remedies is probably the Spanish flies and they are recognized as being aphrodisiacal. The conclusion of the Department of Agriculture as to the efficacy of these remedies is.
>
> "I beg, however, to state that, in my opinion, the samples of 'robusto' which we have examined, and the results of which examination were transmitted to you in my letter of April 22, 1904, can not possibly have the properties ascribed to them in the advertising circulars of the Chicago Cure Company which you have submitted for examination. In my opinion, these remedies are practically inert. The circulars are calculated to excite groundless fears in the minds of those reading them and to develop false hopes of the benefits which are promised. Any good effect which may be noted in the patient as the result of the application of this alleged remedy is probably due to the mental condition noted above and not to the efficacy of the remedy itself."
>
> Being convinced that it is using the mails for obtaining money by means of false and fradulent pretenses, representations, etc., as to a medicine which is incapable of producing the benefits claimed, I recommend that a fraud order be issued against this company.

This memorandum, together with a fraud order, prepared in the usual form for signature, was submitted to the Postmaster General, and on due consideration thereof, he approved the same, and signed and issued said order under date of June 2, 1904.

### III.—BASIS FOR THE FRAUD ORDER.

The evidence which was before the Assistant Attorney General, and which was considered by him, and on which he based his recommendation and finding to the Postmaster General, was considered by him as satisfactory and sufficient to warrant the same.

In coming to the decision reached by him embodied in his memorandum to the Postmaster General, the Assistant Attorney General considered that the analysis made by the Department of Agriculture was a correct statement of the composition of the alleged cure; but he also further concluded that even on the assumption that the formulas submitted by Ganse correctly stated the ingredients of the cure, and assuming further that some of said ingredients might have a beneficial effect in the treatment of certain of the diseases prescribed for, nevertheless, there were numerous and material false representations in the literature of the complainant sufficient to bring the case within the fraud statutes.

Shortly after the issuing of the fraud order, counsel for the complainant called on Mr. Goodwin, the Assistant Attorney General, and requested that said order be stayed for a few days to give him an opportunity to disprove the analysis of the Department of Agriculture, which request Mr. Goodwin declined to comply with, but offered to take up the case and hear additional proofs at any time.

It does not appear that any further effort was made by counsel for complainant to secure a rehearing of the case before the Postoffice Department, or to present any further or other proofs before said department.

### IV.—AUTHORITY FOR THE FRAUD ORDER.

The procedure following the hearing, consideration and determination of this matter was the usual and customary procedure of the Postoffice Department in all similar cases. Under the authority conferred by Section 161, Title IV, of the United States Revised Statutes, the Postmaster General had adopted certain rules and regulations for the government of his department and the performance of its business, among which rules and regulations are the following, which were in force in October, 1903, and thereafter, being portions of Section 21, Postal Laws and Regulations of 1902, viz.:

> Sec. 21. The Assistant Attorney General is charged with the duty of giving opinions to the Postmaster General, * * * with the hearing and preparation of cases relating to lotteries and the misuse of the mails in furtherance of schemes to defraud the public.
>
> The assistant attorney for the Post Office Department is assigned to the office of the Assistant Attorney General for the performance of such duties as the latter may direct. During the absence of the Assistant Attorney General, the assistant attorney will perform the duties devolving on that officer.

Mr. Lawrence was the assistant attorney for the Postoffice Department, and the oral hearing on October 12, was before him, in the absence of the Assistant Attorney General. All the proofs in the case were subsequently laid before the Assistant Attorney General, and were considered by him, in conjunction with Mr. Lawrence, on the final determination of the matter.

None of the proofs, other than those that are recited in the Assistant Attorney General's memorandum, were submitted by the attorneys to the Postmaster General.

In determining cases of this nature, the Postmaster General does not always limit himself to a consideration of the memorandum submitted to him by the Assistant Attorney General, but frequently inquires further into the facts of the case. Whether or not he did so in this particular instance, and if so, to what extent, is not affirmatively shown.

### V.—HISTORY OF THE ADVERTISER.

The master finds that the complainant is not a physician, nor a graduate of any school of medicine, nor is he a pharmacist. He had a common school education in the public schools of New York City. From the age of fifteen until he was twenty-one, he was a clerk in the glass business or wholesale warehouse business; thereafter he successively was a buyer for a St. Louis drug house; manager for Armour & Co., at Kansas City; then associated with his brother in the sale of office furniture at Kansas City; office manager for a firm dealing in physicians' supplies; three or four years in charge of the western department of the Hartman Manufacturing Company, manufacturers of steel picket fences, etc., then sales agent for the same people at Chicago; and finally sales manager for a real estate association at Chicago for a couple of years, during which time he started his robusto business as a side line. Altogether he had spent about three or four years in the drug business prior to starting robusto, and he claims that through opportunities for talking with physicians, and through reading medical books, he had gained information concerning the medicinal effects of his various remedies. He has been conducting his business for the sale of remedies for sexual diseases in men for about ten years. At one time he was interested with his father-in-law, one Dr. Lansdowne, in a drug business at Kansas City. His attention was called by Lansdowne to a system of treatment for sexual weakness used by him and sold in his drug store. It consisted of a combination of remedies composed of a tonic containing phosphorus, nux vomica and damiana, and a laxative. Ganse was arranging to enter into business with Lansdowne for the sale and distribution of said remedy by mail, when the matter was cut short by the death of Lansdowne, which occurred in 1889. It was in 1894 that Ganse commenced the sale of remedies for sexual diseases of men, and he conducted the same as a side line to his regular business until it grew to such proportions as to demand his entire time and attention. The name robusto, as applied to this system of remedies, was adopted by him at the outset in 1894, and has been retained ever since. For many years the system was advertised as adapted to the cure of sexual diseases only, but in February, 1903, the complainant made a change in his system by arranging with one Dr. Krieger to enter into business together for the cure of diseases of every kind, and to conduct a mail and an office practice. New circulars, pamphlets and advertising matter were prepared and were used with reference to the new business, for which the original name of Robusto was retained. This new business continued only about four months, and in June, 1903, the complainant dissolved relations with Krieger, and resumed practically the same business he had been conducting prior to February, 1903. The advertising matter which had been prepared for the new business was discarded, and its further dissemination through the mails was discontinued, and new advertising matter, circulars and pamphlets were prepared and used in the business as thereafter conducted.

Several of the circulars that were distributed during this period of time, from February to June, 1903, were attached as exhibits to the defendant's answer herein, and were introduced in evidence on behalf of the government, both at the hearing before the Postoffice Department and now before the master. There does not, however, appear to be any material difference in the statements contained in such former circulars bearing on the efficacy of complainant's remedies in the cure of sexual diseases, and the statements contained in the advertising matter that was substituted therefor and used thereafter, and the master does not find that the introduction of such earlier circulars before the Postoffice Department worked any prejudice against the complainant in the determination of said case.

### V-A.—ANALYSES OF THE REMEDIES.

The master finds that the remedies that were used by the complainant for the cure of sexual diseases were certain tablets and pills, referred to as the red tablets, the white tablets, the red ellipsoid pills and the white round pills.

There were in evidence before the master four different statements of the composition of these remedies, to-wit: the analysis by the government's chemist, the formulas furnished by Ganse to McAfee, the formulas furnished by Sharp & Dohme, manufacturing chemists, who supplied said remedies to Ganse, and the analysis of the complainant's witness, Gudeman, which concurs qualitatively with the Sharp & Dohme formulas. All the others differ from each other.

The master finds that the formulas furnished by Ganse to McAfee were not correct, and did not truly show the composition of the remedies used by him; that the analysis by the government chemist of the pills and tablets examined by him was correct, and that said pills and tablets did not contain nux vomica in appreciable quantities, but did contain Spanish flies; and that the analysis by the complainant's chemist correctly showed qualitatively the constituents of the pills and tablets examined by him.

No satisfactory explanation is furnished of the difference shown by the analysis of the two chemists. It was suggested by counsel for Ganse that owing to the smaller quantity of material examined by the government chemist and the consequent greater difficulty in detecting nux vomica therein, the analyst may have failed to find it, and yet it may have been present. This explanation the master does not consider probable, in view of the great experience and skill of the government chemist, and the fact that he made careful search in testing for nux vomica, and failed to find it.

It, however, becomes unnecessary to reconcile the two analyses, in view of the master's conclusion hereinafter stated, that none of the several combinations of remedies shown could effect the cures advertised by the complainant in his literature.

### VI.—COMPOSITION OF THE REMEDIES.

According to the formulas submitted by Sharp & Dohme, who are well-known, reputable chemists, the red tablets and the white tablets were of the same composition, and differed only in color. The formula by which they were compounded was No. 4,834, and called for a powdered extract of nux vomica, zinc phosphid, cantharides and damiana; the red ellipsoid pill was compounded according to formula No. 8,123, which called for Blaud's mass and extract of nux vomica; and the white round pill was compounded according to formula No. 3,892, which called for aloes, extract of podophyllin, nux vomica, belladonna leaves, capsicum, croton oil and aloes. Formula No. 4,384 is a good general and nerve tonic; No. 8,123 is also a good general tonic; formula No. 3,892 is a mild laxative.

### VII.—METHOD OF ADVERTISEMENT AND SALE.

The master further finds that at the time of the issuance of the fraud order in this case, the complainant, in the regular course of his business, was making extensive use of the Post-office establishment of the United States and of the United States mails, in distributing his circulars and advertising matter and in sending his remedies to patrons and collecting payment therefor; and that during the year preceding the 2nd of June, 1904, he had furnished his remedies, through the United States mails, to between 25,000 and 30,000 patrons. *His method* of carrying on said business was as follows:

He had purchased or rented lists of names and addresses or persons from certain letter brokers, who made it a business to collect letters written in response to newspaper advertisements. The lists thus procured by Ganse were of letters written in response to advertisements of remedies for nervous debility, and he had in this manner procured lists containing upward of 15,000 names and addresses. To the persons whose names appeared on these lists, he mailed a reply post-card. This post-card (government's exhibit [illegible]8) was signed "T. G. Ganse," and contained among other statements, the following:

> *Having* satisfied ourselves by the most thorough tests that we have a PRACTICAL SYSTEM *for the quick and lasting cure of sexual and nervous diseases,* we are going to GIVE AWAY 5,000 COURSES and let them speak for themselves by *actual results.* We find that if we can cure one person in a community, it is an easy matter to reach others. This new system goes *right to the weak spot,* and we ask the opportunity to demonstrate that it will quickly revive new vigor.
>
> This new, vitalizing system has just been perfected and you can not realize how far it is ahead of the old fogy poisons, the played out Electric Belts, the C. O. D. and other frauds until you try it. * * * This New System will CURE TO STAY CURED all forms of Sexual and Nervous Debility, with their distressing complications, Spermatorrhea, Varicocele, Atrophy and all associated diseases that result in loss of sexual vigor. Young, Middle Aged and Old will find it truly "A MAN BUILDER."

The return half of the post-card is addressed to Ganse, and contains a blank form, to be filled out with the acceptance of the offer. The card is headed: "A Course Free," and states: "To introduce our system we will send a course free of charge to one person in each locality," and such cards were sent not merely to one person, but to as many persons in any locality as Ganse had addresses of.

On receipt of the return part of the postal card a so-called six days' supply, consisting of twelve pills each of the red ellipsoid pill and the white round pill, was mailed to the address given. A circular giving directions for use was mailed with these remedies, which circular also contained the following matter, headed "Important."

> Bear in mind that ROBUSTO is a fixed system *of formulas* which act on an entirely new, progressive principle. This process is in the hands of the most skillful chemists of the land, and the plan of *carrying out the* system which *eventually* includes an internal *and* external combination, *increasing in power as it progresses,* is not deviated from. * * * WE KNOW that the ROBUSTO Strength Building Method, *as now established,* will cure one thousand infirmities while others will be patching up a hundred.

Two days after sending this test course, a circular letter (exhibit 47), together with a booklet (exhibit 48), was mailed to each party to whom the test course had been sent. The letter contained an offer to send a full course of treatment for the sum of four dollars, and in case such course should not be sufficient to effect a cure, another course would be mailed free of charge. Both letter and booklet contained many statements regarding the complainant's system of remedies and the curative effect of robusto on different sexual diseases, some of which statements are recited in the Assistant Attorney General's memorandum hereinbefore quoted.

If no reply was received to this communication, the complainant then mailed another letter to each of said parties, offering easier terms for the purchase of his remedies, and with this letter, a printed circular, entitled or bearing the heading "Robusto, a Man Builder." (Government's exhibit 51.) The quotations from the complainant's literature that are recited in the memorandum from the Assistant Attorney General to the Postmaster General, are all found in these three exhibits, Nos. 48, 49 and 51, and therefore they will not be here repeated.

If still no reply was received, the complainant then sent a circular making still easier terms in the way of payment for *his medicines, and accompanied this circular with* a booklet, entitled "Robusto, a Man Builder, a Bracer and *Developer,*" *which reiterates many of the statements contained in* Exhibit 48, already referred to, and also stated, as follows:

> This advanced "Strength-Building" method is acknowledged now by the highest authorities to be the most effectual in cases of weakness, anemia, etc., but more particularly in the various forms of SEXUAL WEAKNESS, for which we believe it *is the* only reliable specific.
>
> If you have that worn out feeling, ROBUSTO will cure it, as it will torpid liver, imperfect circulation, stomach weakness, head ache, sleeplessness, lack of energy of either body or brain. If you are thin or wasted, it will give you weight and strength. It will develop and equalize all the forces which nature has stowed within your body, with the result that within a short time it will fit you for more real happiness and satisfaction with yourself than you *now dare* to hope for.

When orders for the full course came in reply to these communications, a *so-called fifteen days course* was mailed to the patron, consisting of 15 red and 15 white tablets and 30 of the white round pills. *With this fifteen days'* supply was sent an order entitling the customer on signing and returning the same, to another fifteen days' course without charge. The second fifteen days' course was usually regularly sent, whether it was ordered or not.

Thereafter, complainant's method was to quote prices for treatment by the month for his robusto remedies, and to mail circulars containing various so-called confidential offers and promises and reduced prices, *seeking to induce a* continuance of patronage.

### VIII.—FALSE STATEMENTS.

The master finds that many of the statements made by the complainant and contained in the circulars, letters, and other advertising matter circulated by him through the United States mails, were materially and substantially false and misleading in material matters of fact, and that the necessary and inevitable result and effect of such false and misleading statements were to cheat and defraud those into whose possession such advertising matter came, and who dealt with the complainant under the faith and hopes inspired thereby.

### IX.—FALSE CLAIMS OF NOVELTY.

All the combinations of remedies shown by the Sharp & Dohme formulas and the chemical analysis, and all the drugs entering into them, are old and well-known remedies, and have been used generally among the medical fraternity in the same or similar combinations for very many years, and the formulas are standard formulas and are found in the advertising lists of the regular supply houses engaged in the furnishing of physicians' supplies.

It is claimed by the complainant that although the remedies used by him may not be novel, yet the method of administration, constituting what he calls his progressive plan, commencing with small doses and increasing as the system progresses, with added ingredients and greater strength and power, is new and different from anything ever before heard of, and warrants the claims made by him in that regard.

The master finds that the so-called progressive plan existed only in the complainant's literature and advertising matter, and was not found to any extent in his actual practice. The only internal medicines used by him in the treatment of sexual weaknesses and diseases of the sexual system were the red and white tablets, the red ellipsoid pills and the white round pills. He did not use any remedies or combinations of remedies with added ingredients and of increasing strength as the treatment progressed. It is true that he professed to have certain other remedies for certain specific diseases, such as catarrh, rheumatism and dyspepsia, and in the treatment of varicocele, he claimed to use an external ointment or varicocele absorbent, the composition and effect of which have not been shown; but in the treatment of sexual diseases generally under the robusto system the only internal remedies used by him were as above stated.

All of the pills and tablets were procured from Sharp & Dohme, and he obtained his remedies from no other source. The statement of his account with Sharp and Dohme (*government's exhibit 201*), covering all purchases made by him for upward of two years, shows that during the year *prior to the* issuance of the fraud order, practically the only remedies purchased by him were the red and white tablets and the red *and* white pills, and of those his purchases amounted to many hundreds of thousands.

The master, therefore, finds that the progressive plan feature of the complainant's method of treatment existed only in his advertising literature, and not in actual practice, and that neither in the remedies used nor *in the course* of treatment adopted by the complainant was there anything novel or peculiar.

### X.—REAL STATUS OF REMEDIES.

The remedies that were sent by the complainant through the mails, whether their ingredients were as shown by the government's chemist's analysis or as shown by the Sharp & Dohme formulas, did not and could not cure all forms of sexual and nervous debility with their distressing complications; said remedies did not and could not effect a quick and lasting cure of sexual and nervous diseases; they did not and could not cure spermatorrhea, nor varicocele, nor hydrocele, nor stricture, nor prostatic irritation, nor constipation, nor liver disease; they did not and could not reduce fatty tissue; said remedies had no power to eliminate diseased tissue, nor to develop and restore shrunken and atrophied sexual organs to their normal proportions and strength; said remedies are not a specific in the various forms of sexual weakness; in cases of constipation the effect of their temporary use would be simply to cause a looseness and movement of the bowels, but their continued use would have the effect to aggravate the constipated condition of the patient and make it permanent; several of the above-mentioned diseases, such as stricture, varicocele and hydrocele, can not be cured by the use of any internal remedies, but are capable of being cured, if at all, only by a surgical operation.

### XI.—REMEDIES HAVE SOME BENEFIT.

The complainant's system of remedies hereinbefore described consisted of certain tonics that are well known as general and nerve tonics, and of other drugs well known for their effects as laxatives, or in large doses, as cathartics. It is unquestioned that the tonic remedies have a medicinal effect and are frequently useful in the proper treatment of many diseases, including certain of the diseases claimed to be cured by the complainant; such use is as aids or adjuvants to the specific treatment, owing to their tonic effects on the general nervous system, and especially because of the generally debilitated condition of the patient's system, which is frequently coincident with the specific disease.

So, too, in cases complicated with constipation, it is frequently helpful that the bowels should be kept open and free from accumulated matter, for which purpose the use of a mild laxative is proper treatment. These uses of remedies similar to the tonics and laxatives employed by the complainant are approved generally by physicians and are recommended by standard medical writers on the treatment of disease.

### XII.—UNWARRANTED CLAIMS.

The master finds that the fact that such remedies have such medicinal effects, and are used as aids in the proper treatment of disease for the purposes stated above, furnishes no warrant for the extravagantly false and misleading statements of the complainant relative to the positive cures effected by his remedies on the various diseases above mentioned.

> This new system will cure to stay *cured all forms* of sexual and nervous debility, with their distressing *complications*, spermatorrhea, varicocele and atrophy.
>
> It will develop wasted, atrophied parts to normal proportions and strength.
>
> It is the grandest remedial plan ever devised for the relief of sexual debility.
>
> It consists of the most potent remedies known to science.
>
> It will eliminate the diseased tissues in varicocele or stricture or prostatic inflammation.
>
> In the various forms of sexual weakness it is the only reliable specific.

These and also many others that might be quoted, find in the proofs no basis of fact to sustain them, and rest on no substantial results of experience.

### XIII.—NATURE OF THE FRAUD.

Many of the above and similar averments are statements of absolute matters of fact.

As *to* such as may be claimed to be matters of opinion, the master finds that they were made by one who had or professed *to have*, or is presumed to have had, superior sources of information and especial knowledge on which to base *his opinion*, and the statements were furthermore made with reference to the curative powers of certain compounds, the actual composition and ingredients of which were concealed and not disclosed. These statements were widely circulated *for the* purpose of influencing those to become complainant's patrons who were without such special means of information, and who relied and had a right to rely on complainant's superior knowledge, information and judgment.

If, under such circumstances, opinions not honestly entertained, are expressed concerning the *quality*, merits and curative effect of the medicines which are sought to be marketed, with the intent of influencing *prospective* purchasers, such opinions may justly be regarded as false and fraudulent misrepresentations within the meaning of the Federal Statutes respecting the fraudulent use *of the mails*.

### XIV.—ADVERTISER KNEW HE WAS DECEIVING.

The master *finds* that the complainant was acquainted with the properties and curative effects of the remedies advertised and sold by him; that he had read various standard authors on the treatment of sexual diseases, and *understood* the proper use and limitations of said remedies; that he knew that the only possible beneficial effect that they could have on the human system would be due to their tonic or laxative properties; he knew that his medicines were incapable of producing the effects on disease that are claimed in circulars and advertising matter; and particularly he knew that certain of the diseases advertised by him to be permanently cured by his remedies, are capable of cure, if at all, only by a surgical operation, under the care of a competent physician, and could not be cured by any medicines known to science. He also knew that the remedies used by him were not new remedies, nor were the combinations thereof new, but that both the remedies and the combinations were old and well known and had been in common use among physicians and in the medical world for very many years. He also knew that the alleged novel features of his robusto system, consisting of the so-called progressive, strength-building plan, with added remedies of increasing power, had no existence in fact.

In claiming for his remedies curative qualities and powers which he knew they did not possess, he fraudulently and wilfully intended to mislead and deceive and impose on the public, and by inducing prospective patrons under the guise and influence of false hopes of being cured of their diseases to become purchasers of his compounds, he schemed to obtain, and did obtain from them, large sums of money by means of false and fraudulent representations.

### XV.—INDISCRIMINATE SALE.

The master finds that in the sale and distribution of his medicines, the complainant made no inquiry into the specific character of the disease in any individual case, and failed to examine into the symptoms or causes of the maladies with which those with whom he was dealing were afflicted or believed themselves to be afflicted; but he supplied the same remedies and prescribed the same mode of treatment indiscriminately and to all alike, and to all alike gave the same unbounded assurances of positive cure, with no knowledge before him of their physical condition or the nature of their diseases or supposed maladies further than the mere fact that they had at some time responded to a newspaper advertisement for a cure for nervous debility.

### XVI.—NO QUESTION OF FAITH HEALING INVOLVED.

The master finds that the complainant did not pretend or attempt to lead his patrons to believe that his method of cure of disease was based on faith, or on anything in the nature of Christian Science, or that it was in any respect founded on the theory that the mind of the patient is a perceptible factor in the treating, curing, benefiting and remedying of disease; but his representations were wholly regarding the efficacy of certain medicines which he declared to be specific cures for the diseases specified.

### CONCLUSIONS OF LAW.

As applicable to the foregoing facts, the master finds the following conclusions of law:

1. The complainant does not come into this court with clean hands, but the evidence shows that he is engaged in conducting a scheme or device for obtaining money through the mails by false and fraudulent pretenses, representations and promises, and, therefore, a court of equity will not lend its aid in furtherance of such scheme.

2. While a reasonable degree of exaggeration is justifiable in advertising and extolling the virtues or qualities of that which one is endeavoring to sell, and some degree of commendation and praise of his goods is permissible to a vendor, yet the latitude ordinarily allowed him to puff his wares would not at all justify the extravagant representations and false statements contained in the advertising matter distributed by the complainant.

3. There was presented to the Postmaster General and personally considered by him certain evidence strongly tending to support the finding of the fraud order. Such evidence consisted of the recitals contained in the memorandum and recommendation that was submitted to him by the Assistant Attorney General, and was competent evidence to be considered by the Postmaster General in determining the question of the issuance of such order.

The fact that all of the evidence considered by the Assistant Attorney General may not have been presented to the Postmaster General and been personally considered by him, will not, under the circumstances of the case, affect the legality of his action in issuing the fraud order. To have such effect, it must at least be shown that by reason of certain evidence not having been presented to and considered by the Postmaster General, he has based a fraud order on a palpable mistake of the controlling and material facts. No such proof has been made in this case.

4. When a fraud order has been signed and issued by the Postmaster General, reciting that the facts therein found are based on the evidence satisfactory to him, it partakes of the nature of a final decision by a tribunal duly established by law for the determination *pro hoc vice* of the facts found. It will be presumed in aid of such order and its validity, that the finding was based on satisfactory evidence, and this presumption will prevail unless the contrary is made satisfactory to appear.

Under the circumstances of this case, such presumption will not be rebutted by proof that the Assistant Attorney General did not submit to the Postmaster General certain of the evidence that was heard by him. It was frequently the practice of the Postmaster General, in cases of this nature, not to limit his investigation to a consideration of the memorandum submitted by the Assistant Attorney General, but to personally make further inquiry into the facts, and in the absence of countervailing proofs, it will be presumed in aid of the validity of the fraud order, that such further inquiry was made by him in the case at bar.

5. The fact that no opportunity was given the complainant, prior to the issuance of the fraud order, to contest the accuracy of the government's chemist's analysis, and to prove complainant's contention that his remedies did contain the drugs set out in complainant's formulas, to be true, would not affect the legality of the Assistant Attorney General's action in recommending the fraud order, nor the action of the Postmaster General in issuing the same, nor furnish any cause for holding the fraud order invalid.

Assuming it to be true that the remedies used by the complainant were compounded of nux vomica, Blaud's mass, and the other constituents shown by his formulas, such medicines are shown to be wholly incapable of effecting the cures or working the results on sexually debilitated patients that are set out and promised in the complainant's advertising matter. It is, therefore, immaterial whether the actual composition of complainant's remedies was as shown by the government's chemist's analysis, or by his own formulas, because neither compound could have the effect of producing the cures advertised by him.

6. The master finds that by Section 1, of Chapter 1, of the United States Revised Statutes it is provided that the reference in said statutes to any officer shall include any person authorized by law to perform the duties of such office, unless the context shows that such words were intended to be used in a more limited sense. By section 161 of said Revised Statutes the Postmaster General is authorized to prescribe regulations not inconsistent with law for the government of his department, the distribution and performance of its business, etc. The postal rules and regulations cited in the earlier part of this report are in due compliance with the foregoing statute, and have the force and effect of laws, and the designation by said postal rules and regulations, of the Assistant Attorney General as the officer "charged with the hearing and preparation of cases relating to lotteries and the misuse of the mails in furtherance of schemes to defraud the public," is an authorization *by law* of such officer to perform said duties.

7. The master finds that the context in sections 3929 and 4041 of said revised statutes does not show that the reference therein made to the Postmaster General was intended to be used in a limited sense, or to mean that the hearing of cases under such sections must be had before him personally, or that such hearing could not, under Section 1 of Chapter 1 of said revised statutes, be had before any person authorized by law to perform such duty.

8. The master further finds that under the provisions of the revised statutes aforesaid and under the regulations which have been adopted by the Postmaster General in pursuance of the authority conferred by said statutes, the Assistant Attorney

General, and in his absence the assistant attorney for the Postoffice Department, were duly charged with and authorized by law to discharge the duty of hearing and preparing cases relating to the misuse of the mails in furtherance of schemes to defraud the public; and that the methods pursued by the Postmaster General and by his subordinates in the hearing and determination respecting the issuance of a fraud order in this case, were in conformity with law and in conformity with the rules and regulations of the Postoffice Department.

The master is of the opinion that the fraud order issued against the complainant by the Postmaster General, was, under the facts and circumstances as disclosed by the proofs herein, lawful, and was authorized by Sections 3929 and 4041 of the Revised Statutes of the United States.

10. The master finds that the hearing and determination of the question as to whether or not the complainant has been guilty of a scheme to obtain money through the mails by means of false and fraudulent misrepresentations has been lodged with the Postmaster General and his subordinate officers charged by law with such duty. The jurisdiction thus vested is exclusive, and no court is empowered to review the proceedings in such cases held in conformity with the law, where the finding is based on evidence tending to sustain it, and the proceedings are not tainted with fraud. It follows, therefore, that the finding of the Postmaster General in this case is one which this court has no power to revise or over-rule, and that his action in directing the issuance of the fraud order is final.

It is, therefore, respectfully recommended that the complainant's motion for a temporary injunction herein be overruled; that his prayer for a permanent injunction be denied, and that the bill of complaint be dismissed at the complainant's costs.

All of which is respectfully submitted.

Hervey W. Booth.

Special Master in Chancery of the Circuit Court of the United States for the Northern District of Illinois.

## Therapeutics

[It is the aim of this department to aid the general practitioner by giving practical prescriptions and, in brief, methods of treatment for the diseases seen especially in every-day practice. Proper inquiries concerning general formulae and outlines of treatment are answered in these columns.]

### Treatment of Wounds.

Dr. Burger, in an abstract in *Med. Fortnightly*, recommends, in the treatment of wounds such as usually occur in factories, that the wound be cleansed with a sublimate solution, after which pure balsam of Peru be dropped over the affected areas and gauze immersed in the balsam applied. The gauze does not adhere to the wound as occurs in dry dressings, nor does it macerate the tissues as do moist dressings. The dressings should be changed every two or three days. In this way the wounds heal quickly and are easily kept clean. Varicose ulcers may be treated in the same way with fairly good results.

### Varicose Ulcers.

The following ointment is recommended by Petretto in treatment of varicose ulcers:

| | | | | |
|---|---|---|---|---|
| ℞. | Argenti nitratis | gr. v | | 30 |
| | Balsam Peru | ʒiss | 6 | |
| | Ung. simplicis | ℥iii | 90 | |

M. Sig.: Apply locally to the affected areas after thoroughly cleansing the parts.

By this method the ulcers become clean, the secretion and odor are diminished and healing takes place rapidly.

### Coryza.

The following combinations are recommended by *Med. Press* in the treatment of acute coryza:

| | | | | |
|---|---|---|---|---|
| ℞. | Acidi borici | ʒi | 4 | |
| | Menthol | gr. x | | 65 |
| | Cocainæ hydrochlor | gr. v | | 30 |
| | Pulv. talci | ʒii | 8 | |

M. Sig.: To be insufflated into the nose. Or:

| | | | | |
|---|---|---|---|---|
| ℞. | Sodii iodidi | ʒi | 4 | |
| | Syr. aurantii. | | | |
| | Syr. limonis, āā | ℥i | 30 | |
| | Aquæ | ℥vi | 180 | |

M. Sig.: One tablespoonful three times a day in milk.

As an alkaline wash the following is recommended by some authors:

| | | | | |
|---|---|---|---|---|
| ℞. | Acidi carbol | gr. xv | 1 | |
| | Sodii boratis | ʒi | 4 | |
| | Glycerini | ʒii | 8 | |
| | Aquæ destil q. s. ad | ℥vi | 180 | |

M. Sig.: To be used as an alkaline wash by spraying into the nares three times a day.

This should be followed with an oil spray as follows:

| | | | | |
|---|---|---|---|---|
| ℞. | Thymol | gr. 1/4 | | 015 |
| | Olei caryophylli | m. iii | | 20 |
| | Liq. petrolati | ℥i | 30 | |

M. Sig.: To be used as a spray in the nose.

Internally the following is valuable in relieving the acute congestion:

| | | | | |
|---|---|---|---|---|
| ℞. | Camphoræ | gr. xv | 1 | |
| | Quin. hydrochlor | gr. xlv | 3 | |
| | Tinct. aconiti | | | |
| | Tinct. belladonnæ, āā | gr. xl | 2 | 65 |
| | Sacchari lactis q. s. | | | |

M. Ft. cap. No. xv. Sig.: One capsule every two or three hours.

In some cases the following may be prescribed:

| | | | | |
|---|---|---|---|---|
| ℞. | Morphinæ sulph | gr. 1/12 | | 005 |
| | Atropinæ | gr. 1/300-1/600 | | 0002-.0001 |
| | Caffeinæ | gr. 1/4 | | 015 |

M. Ft. capsula No. i. Sig.: One such capsule three or four times daily.

*The following combinations have also been recommended in* the form of insufflations:

| | | | | |
|---|---|---|---|---|
| ℞. | Aluminis pulv | ʒss | 2 | |
| | Sodii boratis | ʒss | 2 | |
| | Menthol | gr. 1/3 | | 02 |
| | Zinci tannatis. | | | |
| | Bismuthi tannatis, āā | gr. xlv | 3 | |
| | Lycopodii | ʒii | 8 | |

M. Ft. pulvis. Sig.: As an insufflation. Or:

| | | | | |
|---|---|---|---|---|
| ℞. | Zinci salicylatis. | | | |
| | Bismuthi tannatis, āā | ʒi | 4 | |
| | Sodii boratis | ʒss | 2 | |
| | Salol | gr. xx | 1 | 30 |
| | Magnes. carb | ʒii | 8 | |

M. F. chartula. Sig.: As an insufflation.

In chronic rhinitis the following may be used:

| | | | | |
|---|---|---|---|---|
| ℞. | Cocainæ hydrochlor | gr. ii | | 12 |
| | Camphoræ. | | | |
| | Aluminis, āā | gr. iss | | 09 |
| | Menthol | gr. 3/4 | | 05 |
| | Sacchari q. s. | | | |

M. Ft. pulvis. Sig.: As an insufflation into the nares twice daily.

### Syphilis.

The treatment of syphilis should be commenced just as soon as the diagnosis is made, according to Hackett and Aronstam in *Med. Age*. The initial sore requires only cleanliness and the application of an innocuous antiseptic powder such as bismuth subnitrate or boric acid alone, or in combination.

Cauterization is contraindicated and should be resorted to only when the initial lesion is complicated by chancroidal infection and threatens to become phagedenic. The system should be gotten under the influence of mercury without delay, and mercury should be taken regularly for twenty months with periods of short intermission. The authors recommend what they call the "cyclic method," consisting in the administration of mercury in variable, changeable and alternate forms, and in the intervals giving tonics and eliminants.

#### METALLIC MERCURY.

This should be given the preference in the early part of the treatment, administered combined as follows:

| | | | |
|---|---|---|---|
| ℞. Hydrarg. cum cretæ | gr. xxiv | 1 | 65 |
| Ext. nucis vomicæ | gr. iii | | 20 |
| Ext. hyoscyami | gr. iv | | 25 |
| Ferri lactatis | gr. xv | 1 | |

M. Ft. capsulæ No. xii. Sig.: One capsule three times a day, two hours after meals.

The foregoing should be continued for seven days, after which a bitter tonic in combination with belladonna and arsenic should be administered as follows:

| | | |
|---|---|---|
| ℞. Tinct. nucis vomicæ | ʒi | 4 |
| Tinct. quassiæ | ʒiii | 12 |
| Tinct. belladonnæ | | |
| Liq. potassii arsenitis, āā | ʒi | 4 |
| Essentiæ pepsini q. s. ad | ℥iv | 120 |

M. Sig.: One dessertspoonful before meals, in water.

This should be continued for three days.

### PROTOIODID OF MERCURY.

The protoiodid of mercury is the form next to be employed, given in doses of grain ⅛ to ¼ (.008-.015) and administered alone or in combination with the tartrate of iron and ammonium. This should be continued for one week, followed by the same tonic mentioned above for three days. This constitutes a second period.

### INUNCTIONS.

Inunctions of mercury may be employed next, first washing that portion of the skin to be anointed with a saline solution, followed by a brisk alcohol rub, after which the mercurial ointment is applied with thorough friction. The most appropriate time is an hour before retiring. This must be repeated for twelve consecutive nights, applying it: 1, On right arm and corresponding axillary space; 2, on left arm and corresponding axillary space; 3, on anterior thoracic region; 4, on the abdomen; 5, on the right thigh and inguinal region; 6, on the left thigh and inguinal region; 7, on the right leg; 8, on the left leg; 9, on both hands; 10, on both feet; 11, on the lumbar and sacral region; 12, on the dorsal and cervical areas. Two grams (gr. 30) of the ointment are used for each inunction. On the completion of the twelve applications a warm alkaline bath is taken and three days of repose, during which time the tonic is taken.

### MERCURIC IODID.

The mercuric iodid is then given in doses of grain 1/12 to 1/8 (.005-.008) three times a day, in the same manner as the protoiodid, followed by a period of remission.

### MIXED TREATMENT.

The "mixed treatment," which consists of the simultaneous use of mercury and iodin, the former as the bichlorid or biniodid and the later in the form of the sodium or potassium salt, is as follows:

| | | | |
|---|---|---|---|
| ℞. Hydrarg. biniodid | gr. ii | | 12 |
| Sodii iodid | ʒiiiss | 14 | |

M. Ft. cap. No. xxi. Sig.: One capsule two hours after meals. Or:

| | | | |
|---|---|---|---|
| ℞. Hydrarg. biniodidi | gr. i | | 06 |
| Potassi iodidi | ʒii | 8 | |
| Tinct. gentianæ co | ʒiii | 12 | |
| Syr. trifolii co. q. s. ad | ℥ii | 60 | |

M. Ft. solutio. Sig.: One teaspoonful, with water, two hours after meals.

If anemia be present the following combination is advised by the authors:

| | | | |
|---|---|---|---|
| ℞. Acidi arsenosi | gr. 1/5 | | 012 |
| Sodii iodidi | ʒiss | 6 | |
| Hydrarg. biniodidi | gr. ss | | 03 |
| Ferri lactatis | gr. xxiv | 1 | 65 |
| Quin. sulph | gr. vi | | 40 |

M. Ft. capsulæ No. xii. Sig.: One capsule two hours after meals.

This mixed treatment should also be continued for the same length of time as the other preparations.

The use of mineral acids must be avoided, but the fruit acids are permissible.

Pork and pastry must be excluded, also alcohol, coffee and tea; smoking must be

### ELIMINATIVE TREATMENT.

The patient is next put on ascending doses of sodium or potassium iodid for one week, beginning with one minim of a saturated solution, gradually increased. If the iodids are not well borne the syrup of hydriodic acid may be substituted or the iodids may be given per rectum, and a few drops of the tincture of opium may be added to allay rectal tenesmus. After a period of repose for three days, with the tonic treatment administered, warm alkaline baths should be given daily for one week. All treatment is suspended then for a longer interval, perhaps two weeks, at the end of which time the above method should be resumed. The above outline of treatment, according to the writers, possess the following advantages:

1. It never salivates the individual.
2. No untoward after-effects are discernible.
3. Gastrointestinal disturbances are avoided.
4. Consecutive mercurial dermatoses are not apt to appear.
5. It possesses greater efficacy, promptness and permanency.
6. It is more systematic and thorough.
7. The tertiary phenomena are held in abeyance.

### Capillary Bronchitis in Children.

Heubner recommends in the treatment of capillary bronchitis in children counter-irritation by mustard to combat the suffocative conditions. He advises half a kilogram of fresh mustard flour stirred into two liters of warm water until the fumes arising from the mixture irritates the conjunctivæ. A sheet is wrung out of the solution and spread on a blanket. The child is then wrapped in this sheet from head to neck and the blanket drawn over the sheet, giving the patient a mustard pack in which he remains for ten minutes or until the skin is irritated and reddened. The child is then removed from the pack and bathed in warm water and placed in an ordinary warm pack for one or two hours, depending on the reduction of the temperature. If the temperature should increase, or the perspiration become too profuse, he should be taken out before the time stated, again bathed in warm water, dried and clothed in a gown and placed in bed. This treatment may be repeated in twenty-four hours if necessary.

### Administration of Water Before Giving Chloroform.

In order to prevent vomiting after administering chloroform, Prof. Denuce, in *Med. Rev. of Reviews*, states that water should be given before the anesthetic as deglutition takes place during the anesthesia and the air charged with chloroform is swallowed. The chloroform irritates the mucous membrane of the stomach, which, according to the usual practice, is empty and thus causes vomiting. According to the author's idea, the water prevents the chloroform from coming in contact with the mucous membrane, as the most troublesome vomiting may occur on an empty stomach, and the vomiting of a small quantity of water would not be attended with danger. It must not be forgotten that the water passes quickly from the stomach. The writer uses the following method in the administration of the water: An hour and a half before the operation he gives the patient a large glass of water, and this amount is repeated every half-hour until the time for the operation, the patient taking in all four glasses. He relates that in many instances the operations were long, including laparotomies and in none did vomiting occur.

## *Medicolegal*

**Communications to Physicians—Refusal to Waive Privilege.**—The Kansas City Court of Appeals says, in the personal injury case of Arnold vs. City of Maryville, that it is but repeating the statute itself to say that all information obtained by a physician, whether by communication from the patient or observation of the physician, "which information is necessary to enable him to prescribe for such patient as a physician, or to do any act for him as a surgeon," is privileged, and can not be used against the patient without his consent. Therefore, though a physician called to attend a plaintiff personally may learn all about the nature of his injuries, or the disease said to have followed therefrom, and no one else may know so well as he, yet the plaintiff need not call him as a witness, and, if he does not do so, no unfavorable inference should be drawn therefrom. It is not even permissible to ask of the party whether he will waive the privilege and permit the physician to testify, since his refusal would tend to discredit him, and thereby in a manner force him to consent. It must be clear that if an unfavorable presumption against one should be allowed when he refused to waive his privilege, or failed to call the physician as a witness, the privilege itself would be destroyed and the policy of the statute thwarted. The first object of the statute may be said to be a humane object; that is to say, to render as much aid as possible to the restoration of the patient's health or relief from his suffering and injury. It, therefore, adopted the policy of rendering every assistance to the physician by holding inviolate any communication made to him in his professional capacity and any information he might receive from an examination of his patient which was necessary to enable him to prescribe; thus encouraging and inducing the patient to offer every aid in his power toward imparting the information. It is apparent that the information gathered by the physician or surgeon must be in his capacity of waiting on the patient with a view to his cure or relief, if possible; that is to say (in the words of the statute), to enable him to prescribe for the patient as a physician, or do any act for him as a surgeon. So, therefore, if a physician or surgeon examines a sick or injured person, not with a view of prescribing for him or doing any act for him in the line of surgery, he is not disqualified as a witness. It was no part of the object of the statute to facilitate the efforts of a litigant in obtaining evidence with which to advance his cause. The court, therefore, holds that, if it appears that physicians or surgeons were called to examine the plaintiff only with a view of qualifying them to testify in the cause, the result of their examination was not privileged.

**Friendly Visit Does Not Establish Professional Relation—No Moral Insanity.**—The Supreme Court of Louisiana holds, in the case of State vs. Lyons, that it does not follow, because a physician visits a person with whom he is acquainted, and who, being charged with murder, is lying in a hospital, under treatment for a wound, that such visit is paid in a professional capacity, or that the relation of physician and patient is thereby established between them. It also holds that the doctrine of moral insanity, which consists of irresistible impulse coexistent with mental sanity, has no support either in psychology or law.

**Admissibility in Evidence of Exclamations of Pain.**—The Supreme Court of South Dakota says, in the personal injury case of Klingaman vs. Fish & Hunter Co., that the rule admitting evidence as to complaints or exclamations of pain or suffering is clearly an exception to the general rule that self-serving declarations of a party are inadmissible, but such evidence seems to be admissible under the great weight of authority. However, the rule should not be extended so as to include a narration or statement as to the condition or extent of the injury, and not in their nature exclamatory or expressive of present suffering. Witnesses are not permitted to testify to complaints or statements of physical condition or feeling made by an injured person which are made in answer to a question or interrogation descriptive or narrative in their nature, and which are not a part of the res gestæ (essential circumstances of the case).

### Drugless Healing Is Practice of Medicine.

The Supreme Court of New Mexico says that in the case of Territory vs. Newman, where the defendant was indicted for practicing, or offering to practice, medicine without having obtained a license, the jury were instructed as follows: "'The practice of medicine' . . . means (1) to open an office for the practice of medicine; or (2) to announce to the public or to any individual, in any way, a desire or willingness or readiness to treat the sick or afflicted, or investigate or diagnose, or offer to investigate or diagnose, any physical or medical ailments or disease of any person; or (3) to suggest, recommend, prescribe, or direct for the use of any person any drug, medicine, appliance, or other agency, whether material or not material, for the use, relief, or palliation of any ailment or disease of the mind or body, or the cure or relief of any wound, fracture, or bodily injury or deformity, after having received or with the intent to receive therefor, either directly or indirectly, any bonus, gift, or compensation." This instruction, which was objected to, seems to the court to have been favorable to the defendant, rather than otherwise, since it greatly restricted the number of acts which the jury might otherwise have found the defendant committed in violation of the statute. It says that the subdivision complained of was a proper and appropriate one, under the circumstances.

Then the defendant objected that by the statute a new, unusual, and false meaning was given to the phrase "practicing medicine": that he never engaged or offered to engage in the practice of medicine; that, on the contrary, the evidence showed him to be a practitioner of a system of drugless healing; and that the legislature could not so extend the meaning of said words "practice of medicine" as to cover and include methods of healing diametrically opposed to the practice of medicine as theretofore commonly understood and defined. The court answers it would perhaps have been possible for the legislature to choose a better phrase under which to group healing methods of all kinds, although the use of the expression "practicing medicine" to mean the art of healing is by no means new, but rather a return to the original meaning of the word "medical." But whatever may be thought of the terms in which the prohibition of the statute is expressed, there can be no doubt of their meaning; and the defendant was clearly forbidden to do that which the evidence showed, and he did not deny, that he did, without a license from the board of health as provided for by the statute. That it was not claimed he had, and, if the statute was valid, he was liable to the penalty imposed by it.

Again, the court says that it should be noted that the statute does not forbid the use of methods which the defendant said he followed for the cure of disease, or any other methods whatever, but only requires that those who prescribe or make use of them in the practice of medicine, as defined by the statute, shall have qualified themselves for such practice, and received a license, as evidence of such qualification. That the practice of the art of healing, in whatever form and in whatever name it may be followed, is subject to regulation by legislative enactment, under the police power of the state, is so well established that it is no longer open to question. If there were no such rights and regulations, it would be necessary to create them, for the protection of the public against those who take advantage of the widespread ignorance which exists in relation to the human organism to impose their useless and often harmful nostrums and treatments on those who are, or may be led to believe they are, in some way diseased. It is equally certain that the right to regulate should be exercised only in the public interest, and not to create monopolies, or otherwise to violate those fundamental rights which are secured to all citizens.

That certain acts should be made punishable if done for gain, which are not prohibited if done without bad motive, seems to the court to be a matter properly within the discretion of the legislature. It says that it may reasonably have been assumed that the public needed no protection against charitable or friendly ministrations, in which the elements of good faith and sincerity of belief in the remedies prescribed would naturally be present, and in which greed could have no place. It is true that the statute commits the licensing power to a board composed of physicians who shall be graduates of some medical school in good standing, but the inclusion under the term "practice of medicine" of what it is made to cover by the statute might reasonably be construed to extend the meaning of the words used to describe the members of the board in like manner. Whether that view be taken or not, it is certain that the board provided for could be held by the courts to the exercise of its powers in a reasonable and just manner, and would have no right to refuse to issue a license to any one merely because of his being a practitioner of some school of healing different from that to which the members of the board belong. The defendant claimed, also, that the educational qualifications imposed by the statute were not adapted to or required in the simple method of healing which he followed, and that they amounted to a prohibition of his constitutional right to follow his calling. But the court says that the requirements are the same for all who purpose to engage in the practice of medicine, as defined by the statute in question, and therefore not open to the objection that any particular class is unduly favored.

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# *Current Medical Literature*

## AMERICAN.

Titles marked with an asterisk (*) are abstracted below.

### American Medicine, Philadelphia.

*April 15.*

1 *Hysterectomy for Fibroids of the Uterus, with a Report of 250 Operations. J. B. Deaver, Philadelphia.
2 Radical Treatment of Gastric Hemorrhage, with a Review of a Personal Case and 99 Collected from the Literature Since 1900. F. G. Connell, Salida, Colo.
3 Paratyphoid Fever, with Report of Six Cases. J. N. Henry, Philadelphia.
4 *Chronic Eczema as a Complication of the Senile Degenerations. M. Leale, New York.
5 *Postpartum Hemorrhage. H. H. Loveland, Syracuse, N. Y.
6 Contribution to Pathology of Sciatica. J. R. Hunt, New York.

1. **Hysterectomy for Uterine Fibroids.**—In discussing this subject Deaver says that fibroids of the uterus do not require removal unless they are productive of symptoms; but when they do become symptom-producing they should be removed promptly before the patient has been weakened by toxemia, hemorrhage or sepsis. Abdominal supravaginal hysterectomy is the operation to be preferred in the majority of cases. Myomectomy is applicable only to younger women in whom the tumors are few in number and subperitoneal in character. Panhysterectomy is to be employed only when intraligamentary growths, whether uterine or ovarian, render the performance of supravaginal amputation difficult or dangerous. Deaver advises that the ovaries or a part of one ovary should be preserved in every woman who has not reached the age of the menopause, unless they are distinctly and indisputably diseased, or unless their retention would needlessly prolong and complicate the operation. The electric treatment of uterine myomas he condemns without reserve. Among 250 operations for uterine fibroids, Deaver has found myomectomy applicable in only 13 instances. Eleven times he enucleated the tumors by the abdominal route, and twice by the vaginal, the growths in the latter instances being large submucous tumors, with no distinct pedicle. In a fourteenth case in which the submucous tumor was pedunculated, he removed the mass by means of the Downes' cautery. All the myomectomy cases recovered and have not had a recurrence of the growths. Among the series of 250 cases, 34 were complicated by gross disease of the adnexa. For this reason, Deaver considers vaginal hysterectomy for fibroids of the uterus distinctly inferior to hysterectomy by the abdominal route. He favors supravaginal amputation because it is attended by a lower mortality rate and is easier of execution in the majority of instances. Panhysterectomies are done only when the myomatous growths extend so far down in the pelvis and are so close to the cervix that it is difficult, if not impossible, to find any suitable line of cleavage for performing a supravaginal amputation. He has employed supravaginal hysterectomy 219 times, with a total of 20 deaths, only 3 of these occurring in the last 105 operations. He never resorts to catheterization of the ureters in either abdominal or vaginal hysterectomy. In 250 abdominal hysterectomies, the ureter was injured but once, when it could not have been avoided, even if there had been a catheter inserted, on account of adhesions.

4. **Chronic Eczema Complicating Senile Degenerations.**—Eczema occurring in old age is attributed by Leale to circulatory changes and their consequent degenerations. Usually it is an eczema erythematosum. These cases often prove very resistant to treatment, yet it is possible to secure a permanent cure in very many of them, and in all cases a great amelioration of the symptoms can be effected if the treatment is persevered in and carried out carefully. Before doing anything at all, it is necessary to determine accurately the condition of the heart and blood vessels, the kidneys, the lungs and the other organs, meeting any pathologic condition by appropriate treatment. The circulation should be properly maintained, and the emunctories carefully watched. Water should be taken frequently, but in small quantities at a time to secure a constant flushing rather than an overdistention of the heart and blood vessels. Local treatment is essential for the purpose of improving the peripheral circulation in the blood vessels as well as in the lymphatics. Carefully regulated and systematic rubbings and frictions best meet these conditions. He adopts a combination of effleurage and massage with friction, the strokes of the hands following as nearly as possible the course of the veins and lymphatics. For lubrication a fine quality of olive oil is used, and with this, for medication, a pure, finely powdered zinc oxid. Each application lasts from twenty to forty minutes, and should be given at night, preferably just before retiring to secure sleep. When more stimulation is required, a strong tincture of pix liquida is used. Every second night, before the application, the patient is given a bath at 94 F., using a pure olive-oil soap. Under this course of treatment one may expect a more or less permanent cure in most cases within from two to eight weeks.

5. **Postpartum Hemorrhage.**—Loveland is of the opinion that postpartum hemorrhage is not always preventable by careful management of the third stage of labor, as some authors seem to believe. The first step in his treatment of a rapid and severe case is the insertion of the hand in the uterus, the other meanwhile manipulating the fundus through the abdominal wall. Of all the intrauterine treatments, except the first mentioned, hot water douching is the most convenient, the most cleanly, and the most effective. The benefit to be gained by packing the uterus with gauze is doubtful; the danger is evident. Later experiences have firmly convinced Loveland that it is not wise to put anything into the uterus that is not necessary, nor to leave anything there that can be avoided, even though impregnated with antiseptics.

### Medical Record, New York.

*April 15.*

7 *Cerebrospinal Meningitis—Epidemic and Sporadic. G. G. Speer, Los Angeles.
8 *Recent Studies in the Diagnosis of Rabies. D. W. Poor, New York.
9 Modern Methods of Treatment in Obstetrics and Gynecology. J. A. Schmitt, New York.
10 Some Points of View in Regard to the Time when to Perform Myringotomy and the Mastoid Operation. E. Amberg, Detroit.
11 *Decapsulation of the Appendix. A. E. Isaacs, New York.
12 *Tuberculous Testicle and the *X*-ray. W. B. DeGarmo, New York.
13 *Granulation Wound Adhesions, with a Preliminary* Report on a New Application in Preventive Treatment. F. Griffith, New York.

7. **Cerebrospinal Meningitis.**—After presenting a brief historical review of this disease, Speer discusses the clinical history and directs attention to an early pressure symptom which, together with Kernig's sign, he has invariably found present. It consists in a turning in of one or both feet until, if not disturbed, one lies across the other. The legs later become flexed and also tend to cross each other. The plan of treatment is described at length and comprises the use of sedatives, the ice cap, sinapisms to the body, and potassium iodid to promote absorption of the morbid products. Speer prefers the following sedative to opium:

| | | | |
|---|---|---|---|
| ℞. | Potassii brom. | | |
| | Chloralis hyd., āā | ʒii | 8 |
| | Cannabis ind. | | |
| | Hyoscyaminæ, āā | gr. i | 06 |
| | Elix. simplicis q. s. ad | ℥i | 30 |

Of this a child of three is given from 10 to 15 drops every twenty minutes until profoundly under its influence, and it must be repeated as soon as there is either moaning or restless movement of the limbs. The dose for an adult is half of one teaspoonful administered in the same manner. All methods of treatment may be made effective and reliable if used with decision and pushed to the limit of therapeutic effect. Speer says that cerebrospinal meningitis in its worst form is amenable to treatment.

**8. Diagnosis of Rabies.**—The diagnostic value of the so-called Negri bodies or corpuscles, is attested by Poor. He made use of material obtained from 21 dogs, 24 guinea pigs, 10 rabbits, 3 horses and 4 human cases. Of this number, there were 17 cases of rabies occurring naturally. In 16 cases, the disease was produced artificially and 22 animals were used as controls. The Negri bodies are found chiefly as cell inclusions in the Purkinje cells of the cerebellum and in the large ganglion cells in the region of the ammon's horn (hippocampus major). They are minute structures, varying in size from one to 23 microns in diameter, are round or oval in shape; staining reaction eosinophile. In structure they may be homogenous, ring-formed, or vacuolated, and they may contain irregularly grouped granules. A small portion of the brain from both the cortex of the cerebellum and from the ammon's horn is fixed in Zenker's fluid and stained with an eosin-methylene blue combination, in which case the inclusions stand out very clearly as red structures in the blue background of the cell body.

**11. Decapsulation of the Appendix.**—Observing how easily the peritoneal coat could be peeled from the proximal portion of the appendix, Isaacs concluded to utilize the same principle in dealing with the whole appendix when adherent. Having tried this method in a number of instances in which conditions called for it and having found it of decided advantage, it has become an established procedure with him. It saves considerable time and trouble, shortens the operation, and spares considerable handling and manipulation of the viscera. The method is especially useful in those cases of extensive adhesions where but a portion of the appendix can be located, be it either the proximal or the distal portion, and where the rest loses itself in the adhesions and can not easily be traced. The method is as follows: Having located some portion of the appendix, preferably the proximal, the capsule is incised longitudinally, opposite the mesenteric attachment, if possible, so as to avoid the larger blood vessels. The hemorrhage is insignificant. The white glistening surface of the middle layer is the guide to the depth of the incision. The incised serous coat peels off very easily, and the core can be easily separated and raised from its bed without fear of hemorrhage. This white core serves as a guide to the capsule inside of which it can be loosened up a short distance, then the capsule is split for that distance, and the procedure is repeated until the whole length is delivered. A perforated or gangrenous appendix merely makes conditions somewhat more difficult; the decapsulation can be accomplished just the same. As an illustration of the utility of the method. Isaacs gives in detail the history of two cases.

**12. X-Ray for Tuberculous Testicle.**—One case is reported by de Garmo, which was treated with the *x*-ray. There has been no recurrence of the disease after two years. One hundred and twenty-six treatments of ten minutes each were given during a period of ten months. A medium tube was used at a distance of about ten inches.

### New York Medical Journal.

*April 15.*

14 Cases of Enteroptosis and Cardioptosis with Return to the Normal. M. Einhorn, New York.
15 Dietl's Crisis and Some Cases of Movable Kidney. L. W. Atlee, Philadelphia.
16 Inflammation of the Glands of Bartholin. C. C. Miller, Chicago.
17 Atony of the Rectum and Anal Sphincters; Its Etiology, Pathology, Diagnosis and Treatment. (Concluded.) W. Bodenheimer, New Rochelle, N. Y.
18 Erythema and Urticaria, with a Condition Resembling Angio Neurotic Edema, Caused Only by Exposure of the Sun's Rays S. B. Ward, Albany.
19 Contribution to the Alcohol Question. S. P. Beebe, New York.
20 Prophylaxis in Pregnancy and Labor. T. A. Rogers, Plattsburgh, New York.
21 Diet in Typhoid. (Concluded.) J. P. Miller, Washington, and G. N. Murphy, Paducah, Ky.

### Medical News, New York.

*April 15.*

22 *Intracranial Traumatic Hemorrhage. J. S. Wight, Brooklyn.
23 *Preliminary Report on the Use of Diphtheria Antitoxin in Epidemic Cerebrospinal Meningitis. F. Huber, New York.
24 Some Points in the Construction of a High-Frequency Machine. C. A. Wright, Leydenstone, Eng.
25 Report on the Use of Stovaine. C. G. Coakley, New York.
26 *Treatment of Chronic Osteomyelitis and of Chronic Bone Cavities by Iodoform Wax Filling. C. A. Elsberg, New York.
27 Significance of Epigastric Pain. A. M. Pond, Webster City, Iowa.
28 *Gastrointestinal Conditions in Epilepsy. J. W. McLaughlin, Galveston.

**22. Intracranial Traumatic Hemorrhage.**—The clinical history of this condition is discussed in detail by Wight, and two cases are reported, one of which terminated fatally.

**23. Diphtheria Antitoxin in Epidemic Cerebrospinal Meningitis.**—Huber makes a preliminary report on the use of diphtheria antitoxin in the treatment of epidemic cerebrospinal meningitis. The antitoxin was injected indirectly into the subarachnoid space. A lumbar puncture was performed, from four to six drams of cerebrospinal fluid were allowed to escape, then from 1,500 to 2,000 units of antitoxin were slowly injected. No ill effects followed in the series of cases in which this was done. In one case an antitoxin rash was observed seven days later. In some of the cases, only one dose was given. In others the injections were repeated two or three times. This treatment should be resorted to early, before anatomic changes have taken place. The malignant type of the disease is not affected by this method. Not only was there observed in most cases an amelioration of the clinical features, but in several cases in which lumbar puncture was repeated within from thirty-six to forty-eight hours, the number of polynuclear cells was less and the diplococci had diminished in number.

**26. Iodoform Wax Filling of Bone Cavities.**—Elsberg reports the results of his experience with the iodoform wax filling of chronic bone cavities proposed by Mosetig-Moorhof (The Journal, Feb. 18, 1905, p. 583). He has used this material in three cases of chronic osteomyelitis of the hip; four cases of chronic osteomyelitis of the femur; one case of tuberculous disease of the tibia; one of chronic disease of the ulna; and one of chronic tuberculosis of the bones of the elbow-joint. All the patients had been repeatedly operated on according to other methods without permanent cure. Elsberg says that although the results he has obtained with the iodoform wax filling are not so good as those obtained by the author, the improvement in his cases was such as to warrant him in recommending the method for further trial. He thinks it better to remove the Esmarch constrictor before the wax mixture is introduced so that the hemostasis in the bone cavity may be more perfect and the oozing from the bone be perfectly controlled when the normal circulation is established. He has also modified the original technic somewhat. In order to facilitate its hardening, he pours the melted mixture into a basin of sterilized cold water and molds it with the hands until it has about the consistency of putty. He then presses bits of the mass into the walls of the cavity and thus stops the very slightest oozing from the bone and fills up all the small spaces. Then the cavity is tightly packed with a filling in the same way that the dentist fills the cavity in a tooth. He never uses more than 20 per cent. of iodoform in the wax mixture so as to obviate the occurrence of iodoform poisoning, an accident which was observed in one of his cases. In 6 patients, the wounds healed by primary union, except for the drainage opening. In four of these cases, the filling remained *in situ;* in one, a small part of the wax was extruded; in the sixth case all the filling was extruded in the course of two weeks, and the wound then closed rapidly. Success, says Elsberg, will depend to a great extent on the thoroughness with which the operation is done. Reports of his cases will be published in detail later.

**28. Gastrointestinal Conditions in Epilepsy.**—McLaughlin calls attention to the fact that the condition of the gastrointestinal tract in epileptics may have considerable bearing on the production of the seizures. He refers to six cases of genuine idiopathic epilepsy in which the treatment adopted was local, dietetic and general. The results obtained have been uniformly good. The patients are brighter and stronger, and are less nervous and more cheerful. There has been no attack in over two years in one case, and over one year in another. In other cases the attacks have been milder and less frequent. The local treatment consists of lavage with water containing a teaspoonful of sodium bicarbonate or chlorid to each pint of water, followed in cases of fermentation with solutions of silver nitrate 1 to 4,000, allowing the latter to remain in the stomach five or ten minutes. The faradic current, one electrode intragastrically and the other over the dorsal spine, was also used. The diet must be carefully regulated in accordance with the digestive capacity of the patient. General treatment consisted of the administration of strychnin, quinin, nux vomica, bitter tonics and iron, rhubarb and the preparations of mercury.

### Boston Medical and Surgical Journal.

*April 13.*

29 Cancer in and About the Mouth: Importance of Early Diagnosis. F. C. Cobb, Boston.
30 *Results in Cases of Cancer of the Tonsils, Tongue and Jaws, Operated on at the Massachusetts General Hospital During the Eight Years from Jan. 1, 1892, to Jan. 1, 1900. F. Cobb and C. C. Simmons, Boston.
31 *Results of Treatment of Cancer in and About the Mouth at the Boston City Hospital. H. A. Lothrop and D. D. Scannell, Boston.
32 Use of the *X*-rays in Postoperative Treatment of Cancer of the Mouth. E. A. Codman, Boston.
33 Thermotherapy as a Part of Physical Therapeutics. O. Rozenraad, Berlin.
34 Weather Conditions at the Sharon Sanatorium. W. A. Griffin, Sharon.
35 Suggestion for a Practical Apparatus for Use in Intrathoracic Operations. F. T. Murphy, Boston.

30. **Cancer of the Tonsils, Tongue and Jaws.**—Cobb and Simmons report the results obtained in a series of 92 consecutive cases of cancer involving the mouth, observed at the Massachusetts General Hospital during eight years. There were 71 males and 21 females. Almost all used alcohol and tobacco, and many dated the first symptoms from trouble with the teeth. The average age was 54 1/3 years. Taken by decades, that from 50 to 60 gave the largest number of cases; 60 to 70 years came next, with the decade from 40 to 50 third. The extremes in age were 74 years and 21 years. The operation consisted of everything from a simple curetting, or excision of the tumor, to a complete removal of the tongue, or jaw, with an elaborate dissection of the triangles of the neck. Six patients died soon after operation, giving an operative mortality of 10 per cent. Excluding one case of general purulent peritonitis, which was in no way brought about by the operation, the mortality was 8.5 per cent. One patient died of shock, 1 of delirium tremens and 3 of sepsis. There are 8 cases of cures following operation, and all of these patients are alive and well to-day, the time from the date of operation varying from four to fourteen years. In the ninth case the patient lived four years after operation and returned with a sarcoma. Life in the patients operated on was longer than in those not operated on, 33 of the former living over one year from the first appearance of symptoms to 19 of the latter. The patients living over a year were 23 against 5. In 54 cases of cancer of the tongue, 34 patients were operated on, with an immediate mortality of 8.5 per cent. Four are alive and well to-day; 2 thirteen years after operation, 1 six years after operation and 1 four years after operation. A fifth patient lived four and a half years and then died of sarcoma. The percentage of cures of the original carcinoma is 14.3 per cent. The cures all occurred in old cases, the patients being 70, 74, and two 62 years old. There were 8 cases of cancer involving the tonsils, in only 2 of which an attempt was made to remove the whole growth. All these patients are dead. There were 15 cases of cancer of the upper jaw, in 11 of which operations were performed without mortality. Fourteen of these patients have been followed and all but 2 are dead, the average length of life in the patients operated on being 38.75 months. Two of the 9 patients operated on died within a year, 1 lived three years, 2 lived four and a half years, and 1 is alive and well to-day, eight years after operation. In one case of partial excision the patient is alive and well six years after operation. Of 15 cases of cancer of the lower jaw 12 patients were operated on and all but 2 are dead. This series of cases shows that although in malignant disease around the mouth the prognosis is very grave, a certain per cent. of patients are cured by operation.

31. **Id.**—Lothrop and Scannell base their report on records of the Boston City Hospital during a period of nine years. These records embrace 69 cases, 60 of which have been traced. Carcinoma of the tongue occurred in 30 cases; of the inferior maxilla in 22; of the superior maxilla in 9, and of the tonsil and fauces in 8. Seven cases occurred between the ages of 30 and 40; 17 between 40 and 50; 25 between 50 and 60; 15 between 60 and 70, and 5 between 70 and 80. Fifty-six patients were males and 13 were females. Of the total number of 60 cases which were traced, 17 were either considered inoperable or else the patients refused operation. The average duration of symptoms before application was made for treatment was about seven months. Of the 60 patients traced 56 are dead and 4 are alive, the latter seven, five and one-half, five and two years respectively after operation, the lesions in these cases occurring in the tongue and inferior maxilla (each two). In the patients reported as dead the average duration of life, whether operated on or not, was about nine months, the longest being seven years and the shortest twenty days. The average duration of life from time of first symptom, sixteen months; average duration in those not operated on, six months; average duration in those operated on, nine and one-half months. In cancer of the tongue operated cases lived twice as long as non-operated cases. In cancer of the inferior maxilla operated cases lived four times as long as non-operated. In cancer of the superior maxilla, tonsil and fauces there were not enough patients not operated on to justify a comparison.

### St. Louis Medical Review.

*April 15.*

36 Two Cases of Landry's Paralysis; One Terminating in Recovery, the Other in Death. T. Diller, Pittsburg, and C. L. Billard, Allegheny.
37 Uterine Disease as a Factor in Brain Softening. E. A. Hall, Victoria, B. C.
38 Some Predisposing Causes of Bronchial Diseases Peculiar to Pittsburg and Vicinity. W. T. English, Pittsburg.

### Lancet-Clinic, Cincinnati.

*April 15.*

39 Study of Tuberculosis from a Surgical Standpoint. J. C. Oliver, Cincinnati.
42 Some Dermatologic *X*-ray Abuses. M. L. Heidingsfeld and A. J. Markley, Cincinnati.
43 Splenic Anemia—Banti's Disease (?) Splenic Enlargement for Five Years; Hemorrhages for One Year. J. M. Withrow, Cincinnati.

### Journal of the Missouri State Medical Association, St. Louis.

*April.*

44 Influenza Complicating the Puerperium. W. Hall, St. Louis.
45 Brachial Paralysis Following Surgical Anesthesia: Report of Two Cases. H. S. Crossen.
46 *New Test for Detecting Minute Quantities of Albumin in Urine. A. N. Ravold, St. Louis.
47 Presentation of Specimen of Sarcoma and Patient. J. C. Morfit.
48 Unusual Vitality. F. W. Abeken, St. Louis.
49 Topography of the Vertebral Spines and Lower Ribs, with Reference to the Identification of the Individual Bones. V. P. Blair, St. Louis.
50 Uterine Replacement. D. Forster, St. Louis.
51 Tuberculosis. J. W. Nieweg, Owensville, Mo.
52 Treatment of Certain External Diseases of the Eye by *X*-rays. J. Green, Jr., St. Louis.

46. **New Albumin Test.**—Ravold describes his method of detecting very minute quantities of albumin in the urine by increasing the specific gravity of the solution used, that known as the Speigler-Jolles. This is done by adding sulphate of magnesium; the efficiency of the fluid is not interfered with in any way. Fifty c.c. of a saturated solution of sulphate of magnesium are added to a mixture containing 2 grams of corrosive sublimate, 4 grams of succinic acid, 4 grams of common salt and 50 c.c. of water. The urine is first acidified by adding 1 c.c. of acetic acid to 5 c.c. of urine; filter. Then, by the aid of a pipette the urine is slowly floated on the surface of the reagent in an inclined test-tube. If a ring of albumin appears, then heat. The albumin will not disappear. Further examination should be made for globulin, nucleoalbumin or mucin, and the albumoses. The test is exceedingly delicate, is easy of application, simple to prepare, and absolutely free from fallacies.

### Cleveland Medical Journal.

*April.*

53 *Clinical Report of Nine Cases of Diabetes Insipidus. (Continued.) T. B. Futcher, Baltimore.
54 Phlyctenular Ophthalmia. A. R. Baker, Cleveland.
55 Eyestrain and Reflex Disturbances. E. P. Morrow, Canton, Ohio.
56 *Cesarean Section with Torsion of Uterus, Due to Ventrofixation. H. H. Powell and F. E. Bunts.

**53. Diabetes Insipidus.**—After reporting 9 cases of this affection Futcher reviews the clinical history. Four of the cases belonged to the so-called idiopathic group and 5 to the secondary or symptomatic group. All the latter showed very striking cerebral manifestations, and 4 were undoubtedly syphilitic in origin. Thirst appears to be the first symptom complained of in the majority of cases. The knee jerks are usually exaggerated, contrary to the usual findings in diabetes mellitus. In the 9 cases reported they were exaggerated in 5, diminished in 2, normal in 1 and not noted in 1. All the patients with exaggerated knee jerks had cerebral manifestations. There is no constant anatomic finding at autopsy characteristic of the disease. The most frequent changes are enlargement of the kidneys, congestion of the vessels, and dilatation of the tubules. In the symptomatic cases the organic lesions are variable. The prognosis is good in the so-called idiopathic cases, the disease not tending to shorten life. It is graver in the symptomatic cases, emaciation and general weakness often developing rapidly. Death may occur early in the latter group. The treatment in the majority of cases is very unsatisfactory. Opium, ergot and valerian effect only temporary benefit. The cases which appear to do best are those of luetic origin. Antisyphilitic treatment usually promptly relieves the cerebral manifestations and improves the general health and nutrition. Although potassium iodid may cause a decided diminution in the polyuria and polydipsia, it is seldom that these symptoms are completely relieved. The most striking effects, however, are manifested in the improvement in the cerebral symptoms, and in the gain in weight after the patients have been placed on the antisyphilitic treatment.

**56. Torsion of Uterus, Ventrofixation; Cesarean Section.**—In the case reported by Powell and Bunts it became necessary to interrupt gestation because of severe lumbar and hypogastric pains. The uterus failed to respond to introduced bougies on account of its firm adhesion to the abdominal wall. It could not rise up from the spinal column, giving an increase of its perpendicular diameter at the expense of its transverse. The uterus was in a state approximating tonic contraction. After making continuous efforts at dilatation, which resulted in failure, it was decided to perform a cesarean section. On opening the abdomen it was found that the uterus was attached to the abdominal wall at a point about six inches from its fundus by a very short broad ligament. Attached to this ligament also was a portion of omentum. On manipulation the uterus gradually began to contract, and after severing the adhesions it made a complete rotation on its cervical axis, showing that the fundus had escaped in the process of enlargement from beneath the band of fixation and rotated about this as a center. A piece of silkworm gut used for fixation five years previously was found in the band of adhesion.

### Journal of the Medical Society of New Jersey, Newark.

*April.*

57 Gastro-uterine Disease. J. M. Rector, Jersey City, N. J.
58 An Accidental Nephrectomy. E. W. Hedges, Plainfield, N. J.
60 *Some Principles of the Diagnosis of Incipient Insanity. W. H. Hicks, Newark.
61 Medical Societies and Preventive Sanitation. T. N. Gray.
62 *Injuries to the Vaginal Tract During Childbirth, Their Significance and Correction. E. Marvel, Atlantic City.
63 *Treatment of Ano-rectal Fistulæ. A. H. Lippincott, Camden.
64 Conservatism in Medicine. C. Knecht, Matawan, N. J.

**60. Diagnosis of Incipient Insanity.**—The symptoms of mental dissolution are summed up by Hicks as follows: 1. Mental pain—depression. 2. Loss of interest and energy; lack of decision—vacillation. 3. Inattention—absent-mindedness. 4. Decline in object consciousness. 5. Rise in subject consciousness. 6. Decline in the rational elements of the perceptive powers. 7. Marked fatigue of conscious effort. 8. Indifference to welfare of the lifelong cherished ideals of the empirical self. 9. Lessened seriality of thought-incoherence—forgetfulness. 10. Change of disposition, affections and habits, suspicious deceptive. 11. Blunted sense of the social, moral and ethical proprieties. 12. Restricted volition—false judgment. 13. Delusions, hallucinations, destructive impulses, etc. 14. Genesis of a new, confused or illogical ego.

**62. Injuries to the Vaginal Tract.**—Marvel summarizes his paper as follows: 1. Vaginal lacerations are the most common injuries met by the mother in childbirth. 2. Vaginal lacerations produce organic and complex symptoms. 3. Assistance can be given the mother to prevent entirely, or to lessen in extent, her injuries. 4. The only treatment is operative, the earlier the better, and the success of this depends on securing true approximation of the torn parts.

**63. Treatment of Ano-rectal Fistulae.**—The procedure of operation and after-treatment of these cases in the main must be governed by the conditions presented by each individual case. In ordinary cases, however, Lippincot operates as follows: After having had the bowel thoroughly emptied the day before, and the patient put on liquid diet, the field is prepared as in any operation. After the patient is anesthetized he is placed in the dorsal position, the legs being held by means of the clover-crutch. The fistula is probed to give the operator some idea of the direction of the main tract. The sphincters are slowly and gently but thoroughly dilated and the lower part of the bowel is irrigated with a salt or creolin solution. The grooved director is introduced through the main tract and through the internal opening, bringing the end of the instrument out at the anus. With a curved bistoury or scissors the bridge of tissue is divided above the director. It is very important to cut at right angles across the sphincter muscle, thus lessening the danger of fecal incontinence. As much of the sphincter muscle as possible is preserved and the internal sphincter should not be cut more than once. If the fistula is of the horseshoe variety, and by a complete extirpation much damage would be done to both sphincters, it would be safer to do a secondary operation later. After the tract is laid open the back wall of the fistula is incised, thoroughly curetted, and with the curved scissors all fibrous scar tissue is carefully trimmed away. All overhanging edges and the outer edge of the wound are trimmed away, leaving a "V"-shaped wound having its apex at the back wall of the fistula. All bleeding vessels are ligated. After thoroughly flushing the lower bowel and the wound the latter is packed tightly with iodoform gauze, soaked in sterile olive oil, and dressed generously with layers of dry gauze, fastened in place with a T bandage. It is best for the bowels not to move during the first twenty-four hours; after that period there should be a daily evacuation. After twenty hours the first packing is removed. The wound should be dressed daily. After the third day the packing is discarded entirely. Unless the dissection has been a very extensive one the patient may be allowed to get out of bed after twenty hours. The early use of tonics and plenty of good, nourishing food is indicated.

### Medicine, Detroit.

*April.*

65 *Clinical Value of Feces Examination. J. H. Salisbury, Chicago.
66 *Syphilis as Related to the Problems of Longevity. J. N. Hyde, Chicago.
68 Treatment of a Case of Severe Burn and Frost-bite Occurring in the Same Patient. J. F. Percy, Galesburg, Ill.

**65. Feces Examination.**—Despite the difficulty of the investigation and the incompleteness of our knowledge, the examination of the feces should occupy a most important place in diagnosis. The deviations from the function of digestion, continues Salisbury, are often only partly revealed by the symptoms, which in some cases may have no apparent connection with the organ affected, and may even simulate disease of an entirely different organ. Dyspeptic symptoms referred by the patient to the stomach, may depend on the condition of the small or large intestine, and vice versa, diarrhea or constipation may arise in consequence of abnormality in the gastric functions. Imperfection of the digestive processes will be indicated by the presence in the feces of undigested material, or of material which has undergone digestion but has failed of absorption. Evidence of the activity of the liver is afforded by the presence of urobilin in the stools. With marked disturbance of fat absorption, a failure more or less complete of fat-splitting, and the presence of much neutral fat, many undigested muscle fibers and free starch, the presumption is in favor of disease of the pancreas. The light thrown on functional disturbance of the pancreas by the examination of the feces is at present, however, insufficient to permit very valuable conclusions to be drawn. The functions of the intestine may also be gauged by examination of the feces. Such examinations especially recommend themselves because of the accessibility of the material. No apparatus or disagreeable operation is necessary to secure it, as in the case of stomach contents, and the examination may be repeated as often as necessary without risk to the patient. The methods employed are exceedingly simple. Fifteen minutes will suffice for the necessary examination by one who has some little experience. No unusual skill is necessary.

66. **Syphilis and Longevity.**—Briefly stated, Hyde's conclusions in answer to the question, to what extent are the longevity prospects of a man or woman affected by the accidents of syphilis, are as follows: Syphilis may destroy life, or it may disfigure and mutilate the human body to a formidable extent. The disease should be counted among the dangerous scourges of the human family. Neither the physician nor the patient can afford to neglect skillful, energetic and prolonged treatment with a view to setting aside the possibilities of future danger. In the case of inherited syphilis, the fatality, working destruction alike of ovum, fetus and infant, varies between 80 and 90 per cent. of the infected. The percentage of fatality in acquired syphilis is probably less than 2 per cent., and results less often from the active invasion of the disease than from an entailed loss of resistance, by reason of which common agencies of disease produce serious effects, especially in the nervous system. The damage wrought by syphilis is not to be measured solely by its lethal issues. The lowering of the standard of health wrought by the inroads of the malady, and the moral result of the acquisition of the disease popularly described as loathsome, may jeopardize the best play of the body functions, pave the way for the inroads of other toxins, and possibly lay the foundation for mental degeneration, alienation and even suicide. The longevity prospects are unquestionably better for women than for men, by reason of the relative placidity of existence of the former.

### New York State Journal of Medicine, New York.

*April.*

69 Acute Appendicitis and Abscess of the Liver. A. Rupp, New York.
70 Brief Story of a Smallpox Epidemic. E. Munson, Medina. New York.
71 *Prolonged Fasting as a Factor in Treatment of Acute Diseases. N. J. Sands, Portchester, N. J.
72 *Clinical Observations in Scarlet Fever, with Especial Reference to Heart and Other Complications; Therapeutic Suggestions. L. Fischer, New York City.
73 Methyl (Wood) Alcohol, J. P. Atchinson.
74 Legislative Aspects of Alcohol. M. N. Clement.

71. **Prolonged Fasting in Treatment.**—The question is raised by Sands whether we do not eat too much when ill. For many years he has advocated and practiced the opposite extreme of overfeeding—namely, absolute fasting in acute diseases of any grade of severity. His experience with prolonged abstinence from food as an aid in the management of acute illnesses dates back twenty-one years, when he first tried it, in a case of typhoid. Since then he has pursued this plan with all his typhoid cases, and has gradually extended it to the management of all acute diseases of any gravity. The digestive and assimilative powers of a patient are in abeyance in proportion to the severity of the sickness, and, on account of fever, possibly of toxins in the blood and of shock to the nervous system following sudden invasion of disease. nourishment fails to be appropriated to the benefit of the system and handicaps the patient's chances of recovery. He keeps his typhoid patients on a strict "water diet" for about twenty-one days. The amount of water which is ordered and insisted on for the patient to drink is at least two quarts in the twenty-four hours, until in the third week, when, with the falling temperature, less is desired. It should be taken pleasantly cool, not iced. The abdominal symptoms are practically nil; there is no diarrhea; no tympanites, no pain or tenderness. He has never had a case of severe hemorrhage, nor one of perforation, since the institution of this treatment. In gastrointestinal disorders other than typhoid, food is withheld until the symptoms have subsided. It is quite possible for a patient to fast three or even four weeks without the development of a more pronounced weakness than would be expected in any acute exhausting disease of such a duration.

72.—See abstract in The Journal of November 5, p. 1411.

### Journal of Cutaneous Diseases, New York.

*April.*

75 *Acquisition of Syphilis Professionally by Medical Men. D W. Montgomery.
76 *Some Cases of Diseased Nails. G. T. Jackson, New York.
77 *Ethyl Chlorid in Treatment of Zoster. H. Morrow, San Francisco.

75. **Acquisition of Syphilis Professionally By Physicians.**—The object of Montgomery's paper is to present a danger to which medical men are continually exposed, and to draw attention to the indifference they exhibit toward the terrible calamity of infection by syphilis. A number of instances in point are cited.

76. *Diseased Nails.*—Jackson reports a dozen cases of diseases of the nails for the purpose of directing attention to these affections, of which comparatively little is known at the present time.

77. **Ethyl Chlorid in Zoster.**—Used as a counter-irritant to overcome the severe pains of zoster, Morrow has found ethyl chlorid particularly effective. Patients who have not slept for days and who are in constant pain, can be greatly relieved by this treatment. An area the size of a dollar is frozen at a point where the nerve emerges from the spinal column. Although this usually relieves the pain along the entire nerve, it is better to freeze areas where the pain is localized. In some cases this treatment will relieve the pain for a day or more, whereas in others, only for a few hours. When this is the case there is no objection to applying the ethyl chlorid frequently. Morrow has treated ten patients successfully by this method.

### Maryland Medical Journal, Baltimore.

*April.*

78 Intubation Experiences. W. T. Watson.
79 *Abdominal Massage: Indications and Technic.* R. Tauer, Baltimore.

### University of Pennsylvania Medical Bulletin, Philadelphia.

*March.*

80 Congenital Defect of Abduction Associated with *Retraction* of the Eyeball. J. T. Carpenter.
81 Aneurism of the Descending Thoracic Aorta, Causing Erosion of the Vertebræ and Symptoms Simulating Pott's Disease. C. W. Burr.
82 *Influence of Copious Water Drinking. P. B. Hawk.*

### Vermont Medical Monthly, Burlington.

*February 25.*

83 *Experimental Study of Movements Produced in Stomach* and Bowels by Electricity. G. G. Marshall, Wallingford, Vt.
84 One Hundred Pregnancies. L. H. Ross, Bennington.

### St. Louis Courier of Medicine.

*March.*

85 Possible Victory over the Great White Plague. S. A. Knopf, New York City.
86 Early Diagnosis of Uterine Cancer. G. Gellhorn, St. Louis.
87 Baby Incubators on the "Pike." (Continued.) J. Zahorsky, St. Louis.
88 Etiology and Management of Brow Presentations. F. J. Taussig, St. Louis.
89 Left Hemiplegia. H. W. Soper, St. Louis.

### New Orleans Medical and Surgical Journal.

*April.*

90 Therapeutic Paralysis. W. F. Waugh, Chicago.
91 Upper Respiratory Tract as Source of Systemic Infection. H. Dupuy, New Orleans.
92 Rare Form of Facial Spasm. R. M. Van Wart, New Orleans.

### Louisville Monthly *Journal of Medicine and Surgery.*

*April.*

93 Chronic Gastric Ulcer. L. Frank, Louisville.
94 Hydrocele. T. L. Butler, Louisville.
95 Medical Education in the United States. S. G. Dabney, Louisville.
96 Growths in Larynx. J. M. Ray, Louisville, Ky.
97 Management of Acute Middle Ear Inflammation of Children. T. C. Evans, Louisville.

### Medical Examiner and Practitioner, New York.

*March.*

98 Consideration of What Fraternal Societies May Do in the Crusade Against Tuberculosis. W. K. Harrison, Chicago
99 Arteriosclerosis. O. Millard, Flint, Mich.
100 Iritis. Diagnosis, Prognosis and Treatment. D. H. Weisner, New York.

101 Cervix as a Guide in Locating the Fundus, and the Importance of Making an Early Diagnosis in Inflammation of the Cervix Uteri. S. C. Jaques. New York City.
102 Insanity and Epilepsy in Relation to Life Insurance. W. R. Gowers.

### Virginia Medical Semi-Monthly, Richmond.

*March 24.*

103 Conservative Gynecology. C. R. Robins.
104 Volvulus Constituting Intestinal Obstruction Following Cesarean Section, with Uncertain Symptoms. J. N. Winston, Washington.
105 Movable Kidney—Its Causes, Symptoms and Diagnosis. B. L. Hillsman, Richmond.
106 Treatment of Erysipelas with Formalin. T. Dowling, Jr., Washington.
107 Causes and Symptoms of Nasal Obstruction. J. P. Davidson, Richmond.

### Alabama Medical Journal, Birmingham.

*March.*

109 Some Points in the Technic of Gallstone Operations. G. S. Brown, Birmingham.
110 The Lawyer and the Doctor. E. Floyd, Birmingham.

### Northwestern Lancet, Minneapolis.

*April 1.*

111 Suggestion in the Treatment of the Sick. O. F. Way, Claremont, Minn.
112 Binocular Radiography. C. D. Harrington, Minneapolis.
113 Operative Treatment of Fractures and Sprains. A. E. Benjamin, Minneapolis.

### Albany Medical Annals.

*April.*

114 New Revision of U. S. Pharmacopeia. R. W. Wilcox.
115 Surgery of Twenty-five Years Ago. S. B. Ward.
116 Diagnosis of Acute Intestinal Obstruction. A. H. Traver.
117 Evolution of Surgery During the Past Twenty-five Years. A. Van der Veer, Albany.

### Indiana Medical Journal, Indianapolis.

*April.*

118 Bacteriology of Puerperal Infection—Its Relation to Treatment. C. E. Ferguson, Indianapolis.
119 Isthmic Tubal Mole. L. J. Willien, Terre Haute.
120 President Garfield at Elberon. A. H. Smith, New York City.

### Journal of the Kansas Medical Society, Lawrence.

*April.*

121 Embryos—Methods of Treatment. I. Hardesty, University of California.
122 Physician as a Business Man. J. T. Axtell, Newton.
123 Injuries to the Eye. J. W. May, Kansas City.
124 Radical Operation for Hernia. S. McKee, Leavenworth, Kan.
125 Autopsies. G. H. Hoxie, Lawrence.
126 Typhoid Fever. E. Smith, Lawrence.
127 Paresis. C. C. Goddard, Leavenworth.
128 Purulent Conjunctivitis. H. L. Alkire, Topeka.

### Journal of the Mississippi State Medical Association, Vicksburg.

*April.*

129 Relation of Physicians to Each Other. J. H. Plunkett, McComb City.
130 La grippe. D. B. Stevenson, Poplarville.

### Buffalo Medical Journal.

*April.*

131 Case of Cystic Goiter. N. Jacobson, Syracuse.
132 Multiple Herniæ. Large Angioma Hypertrophicum. W. S. Bainbridge.
133 Acute and Chronic Middle Ear Suppuration, with Special Reference to Treatment. G. F. Cott, Buffalo.

### Canadian Journal of Medicine and Surgery, Toronto.

*April.*

135 Diphtheria Complicated by Subcutaneous Emphysema. W. J. Wilson, Toronto.

### Southern California Practitioner, Los Angeles.

*March.*

136 Fundus as a Diagnostic Accessory. F. W. Miller, Los Angeles.
137 Symptomatology of Pneumonia. G. L. Cole, Los Angeles.
138 Complications of Pneumonia. W. A. Edwards, Los Angeles.
139 Massage—History, Theory and Practice. F. S. Seely, Los Angeles.
140 Typhoid—Five Divisions of Treatment. D. C. Strong, Redlands.
141 Study of the Unconscious Mind Under Stress of Bodily Disease. R. Moore.

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## FOREIGN.

Titles marked with an asterisk (*) are abstracted below. Clinical lectures, single case reports and trials of new drugs and artificial foods are omitted unless of exceptional general interest.

### British Medical Journal, London.

*April 1.*

1 Some New Therapeutic Methods in Dermatology. M. Morris.
2 *Chronic Constipation; Its Medical and Surgical Treatment. W. A. Lane.
3 New Methods of Studying Affections of the Heart. (Concluded.) J. MacKenzie, Burnley.
4 *Diagnostic and Prognostic Value of the Leucopenia of Cachexial Fever and Kala-azar. L. Rogers.
5 Experimental Transmission of Mediterranean Fever. E. H. Ross and G. M. Levick.
6 Intermittent Fever in Malta. T. Zammit and G. C. Scicluna, Malta.
7 Ship Beri-beri. G. A. Turner, Kimberley, S. Africa.
8 Spirillum Fever in Uganda. A. D. P. Hodges and P. H. Ross, Uganda.

2. **Treatment of Chronic Constipation.**—Lane discusses particularly the conditions consequent on an imperfect evacuation of the large bowel. In the majority of cases this is associated with the symptoms popularly comprehended under the term constipation, but in a small proportion, while the large bowel up to the hepatic flexure or even to the splenic flexure may be constantly or frequently loaded, yet the patient obtains from the overflow a daily movement which is usually solid, and, consequently, makes no complaint of constipation. The large intestine, whose vitality has been depreciated, both by local inflammatory changes and by the general loss of tone, is thereby rendered liable to some specific infection, and ulcerative, membranous or other forms of colitis may develop in consequence. The condition frequently dates from a very early period, when, owing to the unsuitable feeding of a child, the intestines, and particularly the large bowel, are distended with gas, rendering the whole of the abdomen abnormally prominent. The cecum and ascending colon appear to suffer most severely, owing to the fact that this portion of the bowel is hung up at the hepatic flexure, which is rendered more acute by the distension and consequent elongation of the transverse colon in a downward direction. This distension, by dragging on the band which supports the splenic flexure, renders it difficult for the contents of the transverse colon to pass into the descending colon. In consequence of this distension, the large bowel becomes more or less inflamed, and this inflammation may be sufficient to produce a distinct peritonitis, as manifested by effusion. The inflammation of the cecum and ascending colon produces an adhesive process between the outer wall of the bowel and the peritoneum. These adhesions help to support the increasing weight of this portion of the bowel and to some extent oppose its distension and downward displacement. Precisely similar changes take place at the splenic flexure. After a time these adhesions develop into distinct mesenteries and strong bands. The bowel is less able to perform its functions; the intestine finally becomes bound down; the sigmoid is so contracted up that it ceases to be a loop and forms a straight conduit, the presence of the inflamed bowel in the true pelvis interferes with the functions of the ovary and the fallopian tube, and in this way constipation would appear to play an important part in the sterility so common among women. The stomach function is finally interfered with and the kidneys become mobile. The treatment is purely operative.

4. **Leucopenia of Cachexial Fever and Kala-azar.**—The diagnostic and prognostic value of leucopenia in the so-called cachexial fever and in kala-azar is considered by Rogers. A very marked decrease in the leucocytes is always found in uncomplicated cases of cachexial fever, and when they number below 2,000 per cubic millimeter this is almost diagnostic of the disease, but may rarely occur in true malarial cachexia. In cachexial fever the white corpuscles are reduced to a greater degree than the red, so that the ratio falls below 1 to 1,000 in all uncomplicated progressive cases. This is rarely so in true malarial cachexia, while a reduction in the ratio to below 1 to 1,500 appears to be quite diagnostic of cachexia from other Indian fevers. The most marked degrees of reduction of the leucocytes, and especially of the polynuclears, is of bad prognostic import, and *vice versa.*

### The Lancet, London.

*March 25.*

9 Industrial Anthrax. T. M. Legge.
10 Physiology and Treatment of Surgical Shock and Collapse. J. P. L. Mummery.
11 *Relation of the Parasitic Protozoa to Each Other and to Human Disease. E. J. McWeeney.
12 *Treatment of Pleuritic Effusion by Paracentesis and Incision in Serous Effusion, Empyema and Pyopneumothorax. S. West.
13 Case of Intrapelvic Extravasation of Urine. D. Lowson.
14 Pre-menstrual Pregnancy in a Girl Aged 13 Years. A. W. Addinsell.
15 Case of Chronic Intestinal Obstruction with Perforation of the Sigmoid Flexure. G. A. Clarkson.

*April 1.*

16 *Growth of Cancer. E. F. Bashford.
17 Industrial Anthrax. T. M. Legge.

18 *Physiology and Treatment of Surgical Shock and Collapse. J. P. L. Mummery.
19 Pericolitis Sinistra. H. D. Rolleston.
20 Vibrating Sensation in Affections of the Nervous System and in Diabetes. R. T. Williamson.
21 Case of Pressure Statis. R. L. Joynt.
22 Carcinoma of the Bronchus and Liver Associated with Glycosuria in a Youth. G. Hall and R. H. Tribe.
23 *Soluble Button for Intestinal Anastomosis. P. Paterson.
24 *Crounotherapy in Exophthalmic Goiter. W. B. Jones.

11. **Relation of Protozoa to Disease.**—McWheeny's paper is a brief survey of the advances made during the past three years in our knowledge of the disease-producing protozoa, their biology and their relation to human diseases.

12. **Treatment of Pleuritic Effusion.**—The indications for these operations, indications against, and methods of their performance, are discussed by West.

16. **Growth of Cancer.**—According to Bashford, cancer is identical in all vertebrates, and in growing accommodates itself in a striking manner to the time limitations imposed by the compass of life in different animals. Under favorable experimental conditions the growth of the cancer is undefined, of enormous and limitless amount. Artificially propagated cancer displays all the characteristic features of the growth of sporadic tumors. The growth of artificially propagated cancer is due to the continued proliferation of the parenchyma cells. They cause no symptoms in the organism to which they have been added. The power of differentiation is definitely in one direction only, even three and a half years after separation from the original host. The number of chromosomes constant for the healthy body tissue is retained, notwithstanding the recurring reduction of this number to the exact half. The balance of evidence is in favor of the growth being interrupted and not uniform and continuous. From the standpoint of therapeutics the investigations of the Imperial Cancer Research Fund thus far establish the early surgical treatment of cancer, and of the conditions suspicious of cancer, on that experimental and rational basis which has hitherto failed. Artificially propagated tumors produce metastases as do sporadic tumors. Sufficiently early removal of the local transplanted tumor removes metastases from the region of possibility, and the immediate practical outcome of the whole investigation is a strong experimental justification of early operation in cancer.

18. **Treatment of Surgical Shock and Collapse.**—As causes of these conditions, Mummery mentions exhaustion of the vasomotor centers, and the resulting great fall in blood pressure; lowering of blood pressure from hemorrhage or from paralysis of the vasomotor centers; the anesthetic, and the time consumed in performing the operation. Ether and the C. E. mixture are the best anesthetics for cases in which there is danger of shock. In the treatment of shock stimulants, and especially strychnin, are absolutely contraindicated. The position with the head down and the foot of the bed raised, is of considerable value in the treatment of shock and should be more extensively used. So too, compression of the abdomen, either manually or by the application of a tight abdominal binder. The intravenous infusion of salt solution raises the blood pressure in all degrees of shock, but as a method of treatment it is disappointing because its action is fleeting and can not be continued indefinitely. The introduction of saline solution into the abdomen at the end of an abdominal operation is a valuable method of combating shock, and is not contraindicated by the presence of pus in the abdominal cavity. Mummery believes the best line of treatment in the event of shock occurring or threatening during an operation is the following: If the operation is an abdominal one, the peritoneal cavity should be filled, before being closed, with physiologic salt solution, and if a severe degree of shock is already present, adrenalin should be added to the solution in the proportion of 1 in 40,000. Whether or not the operation be an abdominal one, a firm tight abdominal binder should be applied at the end of the operation, and in bad cases, in addition, the limbs should be firmly bandaged from the extremities upward. Raise the foot of the bed, keep the patient warm and administer some good nutrient enema. No stimulants should be given. The hypodermic injection of ergot is indicated at the earliest sign of shock and should be repeated if any improvement in pulse tension follows its administration. Except where absolutely contraindicated, an injection of morphin should be given at the end of the operation, and if there is any restlessness afterward the morphin should be repeated. If, in spite of these measures, the blood pressure remains low, and the patient continues in a dangerous condition of shock, a solution of adrenalin in physiologic salt solution, in the proportion of 1 to 20,000, should be intravenously infused at a rate of about 3 to 5 c.c. a minute. The infusion should be continued until, on stopping it, the blood pressure is found to remain at a safe level. In collapse following severe hemorrhage intravenous infusion with physiologic salt solution should be performed as soon as possible. The amount of fluid introduced into the veins should be as nearly as possible equal to the amount of blood lost.

23. **Button for Intestinal Anastomosis.**—Paterson has devised a button or bobbin made of gelatin which has been treated with chrome alum. Besides being easy of manipulation and remaining *in situ* for the necessary length of time without injuring the intestine, the button has the additional recommendation that it can be prepared in such a manner as to be more or less resistant to the action of the digestive secretions according to the activity of these in the part operated on, or to suit the particular purpose which the surgeon may have in view. By varying the strength of the solution or the time that it is allowed to act, or by both these means, almost any degree of insolubility can be obtained. Paterson has found that the most suitable strength for intestinal buttons is 10 grains of chrome alum dissolved in one ounce of cold water. The buttons, which are not unlike Murphy's in shape, are made by pouring a strong watery solution of gelatin into molds of suitable size, these having been previously lined with a layer of strong muslin or dressing cloth. This fibrous material becomes saturated with the gelatin and incorporated with the outer part of the button and gives additional strength whilst at the same time it diminishes the tendency to brittleness. When the gelatin has set, the casts are removed and placed in the chrome solution, of which there should be an ounce or so for each button. Casts up to three-quarters of an inch in diameter should soak for from ten to twelve hours. They are then kept in 50 per cent. alcohol until required. It is important to note that when finished a projection on the male part of the button should fit accurately the opening in the female half so that some pressure is necessary to send it home, and to increase this adhesion it is better to have the two made slightly oval in section. A button three-quarters of an inch in diameter, prepared as described, resists solution for from five to seven days. The method of fixing this support is almost the same as that employed in using Murphy's button. A purse-string suture is passed around each end of the divided intestine, and the button, which has its halves opened but not quite detached, is placed in position and the sutures are pulled tight and tied. Should the parts of the button not fit tightly the opening in the female half should be smeared with a layer of thick hydraulic dental cement, and the ends then pressed together.

24. **Exophthalmic Goiter.**—Remarkable results were obtained by Jones in a case of exophthalmic goiter treated by crounotherapy. The patient was prescribed a course of the Llangammarch mineral water, a glass to be taken three times daily, and a course of baths, one on each alternate day. He was encouraged to take a moderate amount of exercise, including hill-climbing. He soon began to improve, the pulsations were less frequent and less violent and soon subsided to 94 per minute. Seven months afterward he was quite free from palpitation, attended to his business without discomfort, and walked several miles a day. The water used contains chlorid of barium, which has an action in slowing the pulse similar to that of digitalis.

### Journal of Tropical Medicine, London.

*April 1.*

25 Elephantiasis of the Scalp. G. A. MacDonald.
26 Occurrence of Relapsing Fever in the Tropics and Its Relation to "Tick Fever." F. C. Wellman, Angola, West Africa.
27 Note on Occurrence of Filariæ in Fijians; from Blood Examinations. G. W. A. Lynch.
28 Effect of Drainage and Other Measures on the Malaria of Kland, Federated Malay States. M. Watson.

### Annales de Dermatologie et de Syphiligraphie, Paris.

*Last indexed page 1265.*

29 (V. Nos. 8-9.) Les substances toxiques et immunisantes dans la syphilis. H. Hallopeau.
30 Contribution à l'étude clinique et histologique des manifestations cutanées de la leucémie et de la pseudo-leucémie. Nicolau.
31 *Syphilis et cancer. J. Etcheverry.
32 (No. 10.) De la blastomycose cutanée. W. Dubreuilh.
33 Report of V International Congress of Dermatology, Berlin, September, 1904.
34 (No. 11.) L'epithéliomatose pigmentaire, type de Unna (Seemannshautcarcinom). Dalous et Constantin.
35 Neuro-fibromatose généralisée avec molluscum pendulum de la moitié droite de la face et ptosis de l'oreille (with hypertrophy and ptosis of ear). Benaky (Smyrna).
36 Autopsie d'un cas d'adénome sébacé de Balzer. M. Pelagatti.
37 Osteitis Deformans and Inherited Syphilis.—Maladie osseuse de Paget et hérédo-syphilis. G. Etienne.
38 (No. 12.) *Le liquide céphalo-rachidien des syphilitiques en période tertiaire (cerebrospinal fluid). P. Ravaut.
39 Thirty-two Instances of "Syphilis by Conception," with Tardy Manifestations in Child or Mother or Both.—Syphilis conceptionnelle à manifestations tardives. L. Perrin.
40 Lymphangite nodulaire intra-labiale au cours d'un chancre syphilitique de la lèvre inférieure (lower lip). P. Delauney.
41 (VI, No. 1.) Le vernix caseosa, l'hérédo-séborrhée et l'acne fetales. L. Jacquet and Rondeau.
42 (No. 2.) Sur les relations du vitiligo et de la syphilis. G. Thibierge.
43 "Scrotal Tongue" in Grandmother, Mother and 3 Daughters.—Langue scrotale en série familiale. J. Payenneville.
44 Recherches sur l'alopécie atrophiante, variété pseudo-pélade. L. Brocq, Lenglet and Aurignac. (Continued from No. 1.)

31. **Syphilis and Cancer.**—Etcheverry believes that syphilis has an active influence on the development of cancer of the mouth, and that this influence is exerted by the preliminary leucoplasia providing a soil for cancer, by the cancer becoming installed in local lesions such as scars on the gums, etc., and by the general lowering of the resisting powers which the syphilitic infection induces. In his experience at Toulouse, he has had occasion to observe 13 cases of cancer following leucoplasia, and a still larger number in which the cancer developed in local syphilitic lesions in the mouth. He cites also a number of cases reported by others. In a third group of 15 cases the cancer developed in the mouth of a syphilitic without appreciable preceding local lesions. Under energetic mercurial treatment the cancer continues its inexorable course while the syphilitic lesion, with which it is associated, shows the effect of the specific treatment. Potassium iodid seems to aggravate epitheliomata, but mercury may induce a transient improvement. The above considerations apply also, probably, to cancer of the rectum in syphilitics, but the literature on this subject is still very scanty.

38. **Cerebrospinal Fluid in the Tertiary Phase of Syphilis.**—Examination of the cerebrospinal fluid of 46 syphilitics showed it always normal when the manifestations of the disease were restricted to the skin, bones or mucosæ, with the exception of cases of perforation of the soft palate. When there were ocular lesions, the cerebrospinal fluid almost always showed evidence of a strong cytolytic reaction. The reaction is more intense the more recent the lesions, and it subsides as the lesion retrogresses. In old syphilitics without any apparent manifestations of the disease the cerebrospinal fluid was always normal. When the nervous system was affected, the fluid always presented indications of a reaction. Any cytologic reaction, therefore, in the cerebrospinal fluid in a syphilitic, isolated or accompanied by other manifestations of syphilis, is a sign that the nerves are affected, if the reaction can not be otherwise explained. The discovery of such a reaction should be a warning to institute specific treatment at once without waiting for further symptoms. The reaction in the cerebrospinal fluid should be accepted as a symptom fully as characteristic as a cutaneous or visceral lesion, requiring the same treatment. Ravaut even pleads that lumbar puncture should be practiced as a routine measure in syphilitics. By the information thus obtained the nervous complications, which are the more dangerous as they develop in such an insidious latent way, may be aborted or warded off by timely, energetic treatment.

### Presse Médicale, Paris.

*Last indexed page 1320.*

45 (No. 12.) Epidémiologie de la méningite cérébro-spinale. A. Mandoul.
46 Les matériaux de l'urine (materials of urine). M. Labbé and H. Labbé.
47 *Traitement du tétanos par les injections épidurales de sérum antitétanique. G. Mornac.
48 (No. 13.) Le traitement de la tuberculose par les inoculations. A. E. Wright.
49 Action of Anesthetics on Blood.—L'action des anesthésiques sur le sang. P. E. Weil.
50 (No. 14.) *De la syphilis stomacale. G. Hayem.
51 *Aortite, tabes et paralysie générale. E. de Massary.
52 (No. 15.) La fièvre méditerranéenne en Tunisie. C. Nicolle and M. Triolo.
53 (No. 16.) Le radium en thérapeutique "Radiumthérapie." P. Desfosses.
54 Results and Improved Technic of Broncho-Esophagoscopy.—Des résultats généraux obtenus par la broncho-oesophagoscopie et des perfectionnements apportés à cette méthode. J. Guisez.
55 Glycerinated Dressings for Vagina.—Pansements vaginaux glycérinés. M. Sayanno.
56 (No. 17.) Tubercle Bacillus and Blood of the Tuberculous.—Le bacille de Koch et le sang des tuberculeux. A. Bergeron.
57 Abcès de la paroi abdominale du à la migration des vers intestinaux (of helminths). P. Sikora.
58 Etudes sur la pathologie et sur l'étiologie de la variole et de la vaccine. W. T. Councilman, G. M. Magrath, W. R. Brinckerhoff, E. E. Tyzzer, S. E. Southard, R. L. Thompson, I. R. Bancroft, G. N. Calkins.
59 (No. 18.) La scopolamine comme anesthésique général en chirurgie. F. Terrier and A. Desjardins.
60 Mécanisme des décollements epiphysaires (separation of epiphysis). A. Broca.

45. **Prophylaxis of Cerebrospinal Meningitis.**—Mandoul had occasion to study 6 cases of cerebrospinal meningitis occurring in the barracks at Angoulême in the course of four months. No regular period of incubation was evident, but the diplococcus was isolated from the cerebrospinal fluid in all. He examined mucus from the nose of 15 healthy men who had been in contact with the sick, and found a diplococcus resembling the virulent germ in all but 3, and actually virulent in 2 of the men. These 2 healthy persons harbored the virulent germ of cerebrospinal meningitis without injury. Another fact he noted was that the cerebrospinal meningitis had developed in every instance secondary to some affection involving the nasopharynx, such as grippe or measles. The natural conclusion from his finding is that periodical rinsing of the nasopharynx, to keep it as aseptic as possible, is the true prophylaxis of cerebrospinal meningitis.

47. **Epidural Injections of Antitetanus Serum.**—Mornac was not successful in curing the patient whose case he describes; the injection was not made until the fourth day of the tetanus. The improvement observed, however, the simplicity of the technic, and the technical success of the procedure as determined at the autopsy, justify further experiments in this line. He thinks that the epidural route is theoretically the one of choice in case the wound is on the legs. The chances for success are of course better the earlier the injection is made. He injected 20 c.c. three times in two days, with two more injections of 10 c.c. each on the third day. Apert has reported a case in which the patient recovered after epidural injection of the serum.

50. **Syphilitic Gastric Troubles.**—Hayem reviews 4 typical cases of tertiary syphilitic manifestations located in the stomach. One type simulates an ulcer, as there is ulceration with hematemesis. Another type suggests benign stenosis, without a tumor. In the *third type*, there is a tumor in or near the pylorus, suggesting the possibility of cancer of the pylorus. The fourth type is a deceptive simulation of cancerous stenosis. The chemistry of the stomach, however, is liable to be that of an ordinary *chronic gastritis*. In the ulcerative form the analysis may suggest the findings of cancer. One of the 4 patients was 60 years old and presented the aspect of a cancer subject. No one thought of inquiring for syphilis in this case, but a history of a chancre forty years before was learned after the operation. *If it had* been suspected before, specific treatment would have been tentatively instituted, as there was no urgent haste, and the syphiloma might have subsided under it. In the absence of a history of syphilis Hayem would refrain from mercurial treatment in such a case as all unnecessary medication may do harm. The possibility of syphilis in presence of a serious stomach affection of obscure origin should not be *forgotten*. If it is even probable or possible, mercurial treatment may do wonders, and may avert the necessity for surgical intervention.

51. **Aortitis, Tabes and General Paralysis.**—De Massary has had 2 patients who applied on account of aortitis alone, but his examination revealed incipient tabes. In others the

affection that brought them to the physician was accompanied by an unsuspected general paralysis. He urges the necessity for minute investigation of the nervous system in every case of a vascular affection of a possibly syphilitic origin.

### Berliner klinische Wochenschrift.

62 (XLII, No. 9, February 27.) Zur Natur des Heufiebergiftes und seines spezifischen Gegengiftes (hay fever toxin and antitoxin). C. Prausnitz (Hamburg).
63 *Neumann's Orcin Test for Sugar.—Die Brauchbarkeit der Orcinreaktion nach Neumann für die Zuckeruntersuchung des Urins. G. Mann.
64 Bismuth Poisoning.—Ueber Bismuth Vergiftung. W. Mahne.
65 *Permanent Results of Bloodless Reduction of Congenital Dislocation of Hip.—Dauerresultate nach der unblutigen Einrenkung angeborener Hüftverrenkungen. G. Joachimsthal.
66 Later Works on Bacteria of Tubercle-Bacillus Group.—Neuere Arbeiten über die Bakterien der Tuberkel-Bacillen-Gruppe. Kutscher.
67 (No. 10.) Favorable Influence of Temp. of 131 F. on Agglutination Test.—Ueber den Einfluss des Temperatur Optimums von 55° C. auf die Agglutination beim Ficker'schen und Widal'schen Versuche. K. Sadler.
68 Ueber die makroskopische Agglutinations-Probe bei Typhoid-Fieber. P. Aaser.
69 *Refrigeration in Treatment of Cutaneous Affections.—Gefrierbehandlung bei Hautkrankheiten. M. Juliusberg.
70 Ueber Meningo-Encephalitis serosa nasalen Ursprungs (of nasal origin). J. Herzfeld.
71 Der forensische Blutnachweis (forensic blood test). H. Marx.
72 (No. 11.) Complement in Blood in Tuberculosis.—Der Komplementgehalt des Blutes bei verschiedenen Formen der Lungentuberkulose. J. Kentzler.
73 Limited Dorsal Flexion of Foot in Peroneus Paralysis.—Ueber eine bisher noch nicht bekannte Begleiterscheinung der Parese des Nervus peroneus. H. Hirschfeld.
74 Action of Brine Baths.—Die physiologische Wirkung der Solbäder. T. Groedel II.
75 *Die moderne Behandlung der Herzleiden (heart affections). E. de Renzi.
76 Sunshine and Epidemic of Catarrhal Fever.—Beziehungen des Sonnenscheins zu der Saison-Epidemie des Winters 1904-05. J. Ruhemann.
77 Rapid Dilation of Cervix.—Einiges über die schnelle Dilatation des Cervicalkanals und über die Bedeutung der Dilatationsmethoden für den Praktiker. Stoeckel.

**63. Neumann's Orcin Test for Sugar.**—Mann praises this test as not only more sensitive than the Nylander and Trommer tests, but as serving to differentiate various kinds of sugars with the single and very simple test. The color reaction differentiates the various hexoses and these from the pentoses.

**65. Permanent Results of Bloodless Reduction of Congenital Dislocation of Hip Joint.**—Joachimsthal presents radiograms of a number of patients treated years ago by bloodless reduction. The remote results have been perfect cures in 60 per cent. of the cases, while in the others mere transposition of the head was all that was accomplished. He regards this percentage as very promising. This method of treatment and after-treatment, he is convinced, makes less demands on the patient than other methods, while experience has shown that the results remained permanent under years of observation.

**69. Refrigeration in Treatment of Cutaneous Affections.**—Juliusberg states that carbonic acid is the refrigerating fluid preferred for this purpose at Neisser's clinic at Breslau. The surface is sprayed with the carbonic acid as when making frozen sections. The broad, perforated nozzle of the vial is held about 1 cm. from the skin, and the fluid is forced out by a bulb. In half a minute the skin is frozen hard. There is anemia at first; this is followed by intense hyperemia, and half an hour later by profuse serous transudation. In twelve hours an inflammatory redness develops, with blisters. When the freezing has been very intense, actual ulceration may follow. When it is necessary to repeat the application, an interval of five to ten days is interposed. Three sittings in less than a month are generally sufficient. This method of treatment proved particularly effectual in 9 cases of lupus erythematodes thus treated. From 3 to 9 applications were made and the patches healed remarkably promptly, but traces of recurrence became visible after a few months, showing that the refrigeration needs to be combined with some other measure to ensure permanency. He thinks the ideal combination is with crude hydrochloric acid, according to Dreuw's technic, described in these columns, page 2002 of the last volume, substituting carbonic acid for the ethyl chlorid. Tuberculous skin affections are evidently the chosen field for this mode of treatment when phototherapy is impracticable for any reason. A lupous patch about six months old, on the forearm, healed with a keloid cicatrix after two applications of the carbonic acid and hydrochloric acid. In another case, two lupous patches on hand and arm ulcerated at first under three weeks of the combined treatment, but then healed over smoothly. All were favorably influenced and apparently cured to date. The experiences at the clinic were with psoriasis, primary sores, leg ulcers and sycosis, besides the tuberculous affections. The primary sores all healed rapidly after a single application of the refrigeration and hydrochloric acid before mercurial treatment had been instituted.

**75. Modern Treatment of Heart Affections.**—In that part of his article devoted to prophylaxis, De Renzi urges that greater attention should be paid to warding off and to treating the affections which we know favor the development of a cardiopathy. Acute articular rheumatism stands in the front rank in this respect, and he asserts that the physician should not be content to treat it with mild measures, but should combat it vigorously. Doses of from 6 to 8 gm. a day (ʒiss to ʒii) are none too large. The physician content with less is liable to be doing his patient great harm. These large doses may induce symptoms of salicylic poisoning, but the danger of a mild and transient intoxication is slight in comparison with the danger of permitting an incurable heart affection to become installed because the articular rheumatism has not been adequately treated. The delay of a day or even of a few hours may allow the inception of a fatal cardiac defect which might have been avoided. Gout and obesity should be treated promptly for the same reason. He protests against Huchard's advocacy of repose as beneficial to heart patients. His own opinion is directly contrary. He believes that exercise trains and strengthens the heart, and is the sovereign remedy for all cardiopathies. Cardiac defects are benefited as the heart becomes hypertrophied, and the heart muscle develops as it is exercised.

### Deutsche medizinische Wochenschrift, Berlin and Leipsic.

78 (XXXI, No. 9, January 31.) Experiences with Early Operating in Appendicitis.—Erfahrungen mit der Operation der akuten Epityphlitis in den ersten 48 Stunden. J. Rotter.
79 Thrombophlebitis mesaraica, eine verhängnisvolle Komplikation der Appendicitis. E. A. Polya. (Commenced in No. 7.)
80 New Form for Administering Iron.—Eine neue Form der Eisendarreichung. P. Meissner.
81 Zur aktiven Therapie des Abortus. A. Sittner.
82 Progress in Care of the Sick.—Fortschritte der Krankenpflegetechnik. P. Jacobsohn. (Concluded.)
83 (No. 10.) Principles for Treatment of Mental Affections.—Grundzüge zur Behandlung der Geisteskrankheiten. O. Binswanger.
84 *Progress in Treatment of Suppurative Perforation-Peritonitis.—Ueber unsere Fortschritte in der Beurteilung und Behandlung der eitrigen Perforations-Peritonitis. Barth.
85 Ueber die Scopolamin-Morphium-Narkose. Dirk.
86 Ueber die Verwendbarkeit des Panendophon zur Feststellung der Organ-Grenzen (unfavorable verdict on modified phonendoscope). O. Kaiserling.
87 *Ueber Herz-Perkussion (of heart). Goldscheider.
88 Great Differentiating Value of Koplik's Spots in Measles.—Ueber die Bedeutung der Koplikschen Flecke für die Diagnose und Differential-diagnose der Masern. H. Brüning.
89 Recent Legal Decisions in Medical Matters.—Die Rechtsprechung in ärztlichen Angelegenheiten. Flügge.
90 (No. 11.) Treatment of Gout.—Die Behandlung der Gicht. O. Minkowski.
91 *Diphtheria Antitoxin as Protective.—Ueber Schutzimpfungen mit Diphtherie-Heil-Serum. J. Ibrahim.
92 Zur Kasuistik der hysterischen Schlafzustände (sleep). C. Bruck.
93 Ueber Wirbel-Frakturen (of vertebræ). O. Croce.
94 Quinin as Oxytoxic.—Ueber Chininum sulfuricum als wehenverstärkendes Mittel. J. Backer.
95 Rapid Embedding.—Ueber Aceton-Celloidin-Schnelleinbettung. F. Scholz.
96 *Filariasis in Tropics.—Beitrag zur Filariakrankheit der Menschen und Tiere in den Tropen. H. Ziemann.
97 Results of Bacteriologic Research in 1905.—Rückblick auf bakteriologische Forschungsergebnisse des Jahres 1904, die von allgemeinerem Interesse sind. Meinicke.
98 Zur Prophylaxe der Rezidive bei Erosionen der Hornhaut (of cornea). H. Feilchenfeld.
99 Plague in Northern China.—Die Pest in Nord-China im Herbst 1903. Eckert.
100 Zum 100. Geburtstage des Sängers Manuel Garcia, des Begründers der Laryngoskopie. A. Jurasz.

**84. Treatment of Perforation Peritonitis.**—Barth counsels early operating and extols the benefits liable to be derived by enterostomy even in apparently desperate cases of peritonitis caused by perforation. He has saved 7 out of 11 patients by this means in the acute phase of peritonitis. One patient was a boy with ileus from progressive peritonitis. The intestine was punctured at three different places and the child recovered. In another case, the intestine was punctured at two places with a similar favorable result. The contracting power of the intestine is the guide to intervention and the criterion for the prognosis. When the intestine is paralyzed, the contents of the loop that is punctured are all that flows out, but when the intestine is still functioning then the feces are passed along and evacuated. If success is not complete in the next few hours or days—and siphoning out the stomach contents is the criterion for this—then there is every probability that a second obstacle exists, and a second or even a third puncture is needed. The technic is very simple. A loop of the intestine is drawn up through a short incision and sutured to the peritoneum. The puncture is made with a fine trocar at once or after tamponing for a few hours. After removing the metal guide, a rubber tube is fastened to the trocar, which is left in place. By this means the wound is kept from being soiled, while the hole in the intestine is so small that it usually closes spontaneously. The mechanism of ileus in case of perforation peritonitis may be open to question, but it is positive that a large proportion of the patients may be saved by enterostomy in time. The details of the 11 cases thus treated are appended.

87. **Percussion of the Heart.**—Goldscheider recommends extremely light, barely audible percussion, as by far the most instructive. Absolute silence should prevail, and the tracings of this extremely light percussion will be found to harmonize most perfectly with the findings of orthodiagraphy, etc.

91. **Diphtheria Antitoxin as a Prophylactic Measure.**—Ibrahim's extensive experiences at the children's clinic at Heidelberg speak convincingly in favor of the great value of protecting injections of diphtheria antitoxin. It confers immunity to diphtheria for three weeks at least, without fail; 250 to 300 immune units is the effectual dose. Children already having scarlet fever, whooping cough, and especially measles, should be given 500 units. The same dosage applies also to infants. In the contagious ward the injections should be repeated every four or, better still, every third week, and in case of measles, every second week.

96. **Filariasis in the Tropics.**—Ziemann has made a study at Kamerun of affections caused by the *Filaria perstans, Filaria bancroftii and Filaria loa.* He found the *Filaria perstans* in a number of Europeans, and noted that the cases of migrating, painful swellings and of multiple abscesses increased in parallel proportion. When the *Filaria loa* was found in the eye there was frequently a history of migrating swell-[illegible] d be the same as for malaria, by an-[illegible] No treatment proved effectual, but in one case the recurring migrating swellings were permanently banished by a course of baths at Kreuznach.

### Münchener medicinische Wochenschrift.

101 (LII, No. 10.) *Two Cases of Extramedian Symphyseotomy.—Zur Indikation des Schambeinschnitts nach Gigli. O. v. Franqué.
102 *Functional Capacity of Female Mammary Gland.—Zur Leistungsfähigkeit der weiblichen Brustdrüse. O. Rommel.
103 Zur Morphologie der pathogenen Mikroorganismen, Diphtherie- u. Pseudo-[illegible] Saul.
104 *Significance o[illegible] and Treatment of Abdominal A[illegible] ihrer Bedeutung für Diagnose und Therapie der Abdominalerkrankungen. B. Auerbach.
105 *Ueber die [illegible] von Infektion, Gefäss- and Blut-[illegible]ur Sklerodermie. L. Huismans.
106 Zu [illegible] der choreatischen Geistesstörung (mental disturbances). L. Ruppel.
107 Fall von disseminierter Fett-Nekrose infolge Schussverletzung des Pankreas (fat necrosis after bullet wound). R. Kindt.
108 Fall von Simulation epileptischer Krämpfe bei einem 13 jährigen Schulknaben (by schoolboy). Aronheim.
109 Neue elektrische Beleuchtungs- und Untersuchungs-Lampe (illuminator) [illegible]
110 *Prevention of [illegible] erhütung des Puerperalfiebers. H[illegible]
111 The Medical S[illegible] Ago.—Ein ärztlicher Rückblick auf ein halbes Jahrhundert (1855-1905). A. Riedel.
112 (No. 11.) *Action of Mercury.—Ueber Quecksilberwirkung. E. v. Düring.
113 *Quantitative Test for Air in Lungs.—Ueber die quant. Bestimmung des Luftgehaltes der Lungen, besonders bei Neugeborenen, eine Erweiterung der Lungen-Schwimm-Probe. J. Stumpf.
114 Influence of Fever, Infection and Kidney Injuries on Suprarenin Glycosuria.—Der Einfluss von Fieber, Infektion und Nierenschädigung auf die Suprarenin-Glykosurie. A. Ellinger and A. Seelig.
115 *Sigmoiditis chronica granulosa.—E. Helber.
115½ Zur Frage der Hämolysin-Bildung pathogener Staphylokokken-Stämme.—A. Lohr.
116 *Erfahrungen mit dem Uterus-Krebs in Nürnberg (cancer at Nuremberg). S. Flatau.
117 *Treatment of Sclerodermia with Mesenteric Gland.—Fall von [illegible] Sklerodermie, behandelt mit Mesenterial-[illegible]
118 *3 [illegible] eters.
119 Zu [illegible] Zehen-Phänomenons (toe [illegible]
120 Operative Treatment of Subcutaneous Rupture of Spleen.—Subkutane Zerreissung der normalen Milz und ihre chirurgische Bedeutung. Neck.
121 3 Cases of Veronal Poisoning.—Zur Kasuistik über das Veronal. W. Alter.
122 *Kolposkop. A. Foges (Vienna).
123 Double Tissue Forceps.—Dreiteilige Pinzetten. J. Hertzka.
124 Presence of Radium in Kreuznach Waters.—Das Vorkommen von Radium in den Kreuznacher Solquellen. K. Aschoff.

101. **Extramedian Symphyseotomy.**—The results in the 4 cases in which von Franqué has performed symphyseotomy by Gigli's extramedian technic, have been so favorable that he thinks its indications can be extended to include even infected cases. The edges of the wound separated in one of his patients, who had endometritis—acquired intrapartum—and although there was some temperature at times, the wound healed by granulation without suppuration and there was no cause for concern at any time.

102. **Technic of Nursing.**—Among the points emphasized by Rommel in his study of the best means to promote the nursing capacity, is the advisability of giving the child only one breast at a meal. This allows the one breast used to be thoroughly emptied, while the other breast has a doubly long rest. The longer the intervals between meals the hungrier the child, and the more energetically it sucks. This energetic sucking is the most important factor for the development of a good nursing capacity. The breast generally responds to energetic sucking with a copious secretion of milk; feeble sucking elicits but a feeble secretion. He has had wealthy women with weakly infants come to his maternity for a week or so to give the breast to strong, energetically sucking infants, while their infant was nursed by someone else with well-developed breasts. When they left their infants were much stronger, while their breasts had responded to the energetic sucking with a copious secretion of milk. A generous diet without any special restrictions should be advised. It seems to be immaterial whether the woman drinks milk or water for her beverage, but two to two and a half quarts of fluid should be ingested during the twenty-four hours. One of his wet nurses trained on these principles secretes 3,610 gm. of milk a day, and has been nursing five infants for several weeks, and is in robust health.

104. **Pleurisy Secondary to Abdominal Affections.**—Chance has thrown in Auerbach's way during the last few months 5 cases in which a pleural effusion was a secondary phenomenon accompanying an abdominal affection. The effusion was serous and sterile in 3 cases in which a puncture was attempted. The presence of the effusion was accepted as a sign of some suppurative affection in the abdomen below. This assumption was confirmed by the course of the case in every instance. When there are no symptoms, or merely slight symptoms pointing to the abdomen and the progressive inanition and temperature indicate some serious malady, a history of some stomach or gallstone affection or of a suppurative process in the abdomen or of some kidney or bladder trouble, will sometimes point the way; but still more suggestive is the discovery of pleurisy, even in a mild form, if a lung affection can be excluded. The pleural effusion justifies the suspicion of some suppurative process below the diaphragm, usually on the same side, and puncture confirms the diagnosis.

105. **Sclerodermia and the Vascular System.**—Huismans found the blood glands in a morbid condition as evidenced by the symptoms exhibited by the patient in the case of typical sclerodermia which he describes. From study of this case and of others in the literature he asserts that sclerodermia can not possibly be a pure neurosis *in all its stages.* There is evidently a neurosis of the sympathetic as the foundation for the affection, but it is unable alone, to produce the sclerodermia. Secondary infection of the blood glands and blood vessels is indispensable for this.

110. **Prevention of Puerperal Fever.**—Doerfler remarks that restless progress is apparent on every hand and in every field of human activity except one. The centuries have made no change in the midwife. (He evidently refers to the country

district of Bavaria.) She still examines, with dirty hands, the parturient woman, repeating the examination ten, twenty times, or even more, her finger nails still filled with the dirt from digging or washing potatoes or weeding the garden. He insists that the law should compel her to wear rubber gloves when making an examination, and that all water used about the parturient should be boiled, and that the vaginal douche should be legally forbidden. He states that Bavaria has nearly 5,000 midwives and they take charge of about 215,000 childbirths annually. The state should supply the necessary rubber gloves. Prevention of puerperal fever would also ward off the consecutive gynecologic troubles and invalidism of the wife and mother, and the defective development of children born later.

112. **Action of Mercury.**—The synthetic production of indigo has been a comparatively difficult process until recently, when it was learned that the addition of a little mercury induced catalysis with which the synthesis proceeded rapidly and smoothly to its consummation. This induced Schade to study the electric catalytic action of mercury since this discovery, and he has learned some interesting facts which throw light on the action of mercury in the organism. The catalytic processes are practically independent of the amount of the catalyzer; the extent of catalyzing surface is the main thing. The more finely divided the mercury, the greater the catalyzing surface and the greater its catalytic action. Guaiacol or naphthol added to $H_2O_2$ causes a change in the color of the fluid from the oxidation that slowly proceeds in it. This oxidation is promptly activated if a little mercury or other heavy metal be added to the fluid. The metal does not cause any chemical reaction in the fluid, but accelerates to a remarkable extent the oxidation processes.

113. **Quantitative Test for Air in Lungs.**—Stumpf hooks to the lungs to be examined a small wire basket, like a tea-strainer, and places the whole in a jar of water. He then puts some shot or other weights in the wire basket until the lung is weighted down by them and begins to sink. He has found that each gram of the weight corresponds to 1 c.c. of air. His experience has further shown that adult lungs weighing as much as 1,500 to 1,600 gm. with 800 c.c. and over of air, are encountered only in case of death from suffocation or of sudden death which had more or less of the character of suffocation. When the weight of the lung is surpassed by the figure representing the amount of air, this finding speaks for death from drowning. The probability of death from hemorrhage is increased as the figure representing the amount of air approaches the weight, if it is low. A high weight, with small amount of air, suggests the probability of some preceding inflammatory process or morbid changes in the lungs or a protracted death agony. He applies the term *Lungentragfähigkeit*, or "capacity of holding up," to the figure which represents the amount of the weight required to submerge the lung. He points out that the temperature of the water in which the lung of the newborn is floated has great influence on the outcome of the test.

115. **Chronic Granular Sigmoiditis.**—Helber records a case of recurring sigmoiditis distinguished by the characteristic symptoms of frequent hemorrhages, exaggerated mucus secretion and tendency to spasmodic contraction. There was pain in the region of the left tube, due to pressure on the inflamed segment of the intestine. Constipation was obstinate, but there was no tenesmus. The first symptoms had been pains in the upper abdomen and stomach, probably due to spasmodic contraction in the colon with stagnation of feces. The endoscope showed intense inflammation in the descending portion of the sigmoid flexure, stopping about 2 to 3 cm. below the junction of the flexure with the rectum. A gonorrheal origin was possible. Treatment included rest in bed, compresses externally and opium internally, with injections of water for the coprostasis. After the spasmodic contraction had subsided, high enemas with from .5 to 1 per cent. tannin were found useful, with application of a 5 per cent. solution of silver nitrate directly to the parts, through the endoscope. The parts swabbed with the silver were not bleeding when inspected again through the endoscope. The patient was thus cured of the debilitating daily hemorrhages.

116. **Uterine Cancer at Nuremberg.**—Flatau analyzes his experiences with the 259 cases of cancer of the uterus which he has had occasion to observe during the last twelve years. They formed 1.95 per cent. of his total gynecologic practice. He found that a number of the patients had been previously under medical care, but in more than 10 per cent. the physician had neglected to make a digital examination of the genitalia. Only 12 of the 121 patients operated on are permanently well to date. All the others have succumbed to recurrence. Eight of these 12 were cases of carcinoma of the body of the uterus. Discharge and bleeding had been noticed by the patients for from two weeks to a year before they applied to the physician.

117. **Organotherapy in the Treatment of Circumscribed Sclerodermia.**—Schwerdt believes that neurasthenia, enteroptosis, exophthalmic goiter, myxedema and sclerodermia are intimately connected. He is convinced that sclerodermia is an affection due to the passage of some intestinal toxin into the chyle vessels. This toxin passes unaltered into the blood if the mesenteric glands fail in their functions. He has treated a case of sclerodermia on this assumption, administering the substance of the mesenteric glands, and reports the progressive improvement of the patient to almost complete cure at present. He theorizes to explain how the hardening and impermeability of the subcutaneous lymph glands and lymphatics would induce the picture of sclerodermia, especially the circumscribed form. He uses the mesenteric glands of sheep, in powdered form or in tablets of .3 gm. each. His patient was a girl of about 8, and she took the one tablet a day. There were no subjective disturbances.

118. **Exophthalmic Goiter.**—In a severe case described, all the symptoms spontaneously retrogressed under careful hygiene. The 2 other patients made remarkable improvement under organotherapy.

122. **Colposcope.**—The instrument for visual inspection of the vagina is a broad, short tube with a transparent glass cap. The tube is inserted in the vagina, closing the opening, and the vagina is inflated through it with a double air bulb. As the air distends the walls of the vagina, they can be inspected through the glass cap. Foges adds that he has recently learned that a similar instrument was presented by Laws in 1900, under the name of the pneumatic sigmoidoscope.

### Gazzetta degli Ospedali, Milan.

*Last indexed page 752.*

125 (XXV, No. 145.) *Bulging of Pyloric Region.—Bozza pilorica. S. Mircoli.
126 *Action of Antimony on Blood.—Azione dell' antimonio sul sangue. S. Montemagno.
127 *Resultati del metodo Fiorani nella cura degli angiomi (angiomata). F. Bindi.
128 *Febrile Malarial Enterorrhagia.—Sulla febbre enterorragica da malaria. D. Scozzati.
129 Della polimiosite primaria. A. Prandi.

125. **Pyloric Bulging.**—In an abstract in these columns, on page 752, Mircoli's previous communication on this subject was summarized. He applies the term *bozza pilorica* to the bulging sometimes noted in the epigastrium with the stomach empty. He here presents arguments to sustain his idea that the human stomach is really the rudiment of four distinct organs, that is, of the four stomachs of the ruminants. The fundus, the body, the antrum, and the pylorus each represents one of these ancestral organs. The antrum is particularly distinct from the rest of the stomach, especially during the digestive period. The antrum is eminently a motor organ, with scanty elaboration of gastric juice, while the rest of the stomach is very slightly motor and predominantly secretory in its functions. The secretion of the body of the stomach is acid; that of the antrum is decidedly alkaline. During the process of digestion the antrum works differently from the rest of the stomach, its systole and diastole serving to pump the contents along, and serving, besides, as regulator to hold back or to pass along the chyme. In morbid conditions, the antrum may work excessively, outside of digestion, and may show as a bulging in the epigastrium. The bulging may be due to spasm of the two sphincters, on each side of the antrum, or it may be due to loss of the muscular tone of its walls from neuromuscular influences, or it may be referable to *infiltra-*

tion of the walls by some primary or secondary catarrhal process, or to all these causes together. The initial clinical manifestations of the pyloric bulging only slightly resemble those of gastrectasia. On the other hand, the general symptoms are particularly marked, and in the majority of cases assume the aspect of essential neurasthenia, that is, they present a syndrome apparently not imputable to the stomach. The discovery of the bulging explains other puzzling manifestations, and it also allows the gastrectasia to be combated in time. Treatment should be both dietetic and mechanical, and should include the wearing of an abdominal band to support all the viscera, but especially the antrum and the pylorus region Such a support gives a more solid foundation for the motor functioning of the stomach to work on. Sodium sulphate or its equivalent may be given or a little nux vomica. The study of stomach affections in general and of gastrectasia in particular should be directed along different lines from those hitherto followed. The stomach should be regarded from the standpoint of its structure, its function and its pathology as a multiple organ, double at least, whose two segments can become morbidly affected together or alone, independently of each other.

126 **Action of Antimony on Blood.**—Montemagno's experiments on dogs and rabbits demonstrated that minute doses of antimony improve the composition of the blood as they increase the proportion of hemoglobin, the number of red corpuscles and their resisting powers This improved composition of the blood persists for some time after cessation of the drug Large doses have a hemolytic action.

127 **Corrosive Sublimate Treatment of Angiomata.**—Bindi relates three cases of disfiguring angiomata cured by Fiorani's technic of local applications of collodion containing 13 per cent. of corrosive sublimate When the eschar dropped off the parts beneath were found covered with normal epidermis, the angiomata having been completely destroyed by the caustic applications.

128 **Malarial Gastrointestinal Hemorrhage.**—Scozzari describes the case of a civil engineer whose business took him temporarily into very malarial regions. He suffered from attacks of malarial fever, with hemorrhages from the stomach and intestines. The spleen and liver were not enlarged to any extent, and all the symptoms subsided under quinin. He ascribes the hemorrhages to a neuroparalysis of the walls of the vessels due to the action of the malarial poison. He does not think that any actual lesions were the source of the bleeding

### Medicinskoe Obozryenie, Moscow.

*Last indexed page 432*

130 (LXI No 4) Hepatopexia V N. Rozanoff
131 *K kazuistikye ostrago gonorroinago parenchymatoznago prostatita (gonorrheal prostatitis). A P Jordan.
132 Experimental Data on Large Dogs for Study of Origin of Arrhythmia of the Heart—O proiskhozdenii aritmii D Pletneff
133 (No 5) *Asymmetrical Radial Pulse with Mitral Stenosis—O razlitchnom puls v lutcheryakh arteriyakh pri stenozye [illegible] a N E Kusheff.
134 *[illegible] puzyra (of bladder). Devitzki
135 [illegible] Blum.
136 [illegible] yphilis in Etiology of Tabes Case [illegible] znatchenii syphilisa v etiologii spinnoi sukhotki P A Preobrazhensky.
137 Case of Geophagia—Slutchai nepreodolimago vletcheniya k zemleyedstvu
138 2 Cases of Primary Angiosarcomata of Kidney—2 slutchai perv opukholi potchek I Pozharlski.
139 (No 7) Two Operations for Wounds of the Heart—K kazuistikye ranenii serdtza P Gertzen
140 3 Cases of Bladder Complications in Appendicitis—Oslozhneniya so storony motchevogo puzyrya pri appendicitye G Baradulin

131 **Acute Gonorrheal Prostatitis.**—Jordan has observed this complication in about 3 7 per cent. of his 482 cases of gonorrhea. One of the 13 patients had four abscesses and another two. The pus emptied into the urethra from 13 of the abscesses, into the rectum from 2; and once it found an outlet through the perineum To prevent evacuation of the pus through some dangerous byway he advises an early incision without waiting more than ten days for fluctuation. In local treatment he orders rectal injections of hot water or instillations He gives sodium salicylate internally, and finds it very useful.

133 **Cause of Asymmetrical Pulse in Mitral Stenosis.**—The findings during life and after death indicated that the cause of the differences in the radial pulse was evidently a compression of the arch of the aorta and of the carotid and subclavian arteries from the enlarged left auricle.

134. **Chorioepithelioma of the Bladder.**—The microscope confirmed the diagnosis of *malignant chorioepithelioma* of the bladder in the case described. It was in the bladder of a woman of 75, a virgin, and was evidently primary. There were numerous myofibromata in the uterus, but no traces of chorioepithelioma in the genitalia.

136 **Syphilis in Origin of Tabes.**—Preobrazhenski asserts that everything tends to show that there can be *no tabes without syphilis any more than there can be a diphtheritic paralysis* without preceding diphtheria. He does not think that preceding antisyphilitic treatment has much, if any, influence in preventing the development of tabes. His own experience, as well as that of others, has shown that it may develop after and even simultaneously with persevering specific treatment the same as without any treatment. He describes a case of tabes in a child of 12 whose mother was under treatment for cerebral lues and tabes, the tabes developing nearly simultaneously in mother and son.

### Hospitalstidende, Copenhagen.

*Last indexed page 1234.*

141 (XLVII, No. 46.) Research on Ca[illegible] terlor Chamber Sterilizing by [illegible] over Catgut, Indbragt i forreste [illegible] fordt.
142 (No 47) *Et Tilfaelde af medfodt total Farveblindhed med Bemerkninger om Stav- og Tapfunktion (congenital color blindness). J Bjerrum
143 (Nos 47-49) Rhinoplastik J Boysen.
144 *Undersogelsen af Thorax' Bevaegelser (movements of thorax) E Bocher.
145 *Appendicitis pelvica A Borgbjaerg
146 (No 50.) *On Behandling af Myxedemet med meget smaa Thyreoidin doses S Alsted.
147 Origin of Sensation—Om Folelsens anatomiske og fysiologiske Oprindelse S Thalbitzer
148 (No 51) *Meddelse om [illegible] bus Basedowii med [illegible] Geder (organ treatm[illegible] Christens
149 (No 52) *Behandling af tor traumatisk Arthritis med Vaselin-Injektion T Rovsing
150 (XLVIII, Nos 1 2) Bidrag til det kroniske Mavesaars Patogenese (gastric ulcer) C E Bloch
151 Et Tilfaelde af Veronalforgiftning (veronal poisoning) J Kuhn
152 (Nos 3 5) Behandlingen af Appendicitis L Kraft

142. **Case of Congenital Total Color Blindness.**—Bjerrum's patient was a fisherman, 21 years old, and the ophthalmic findings were typical of congenital total color blindness, similar to the findings in Grunert's 5 cases. The patient's two brothers seemed to have been affected in the same way. Bjerrum has made a careful study of the physiology of color vision deduced from its absence in this case, and thinks that our present views in regard to the functions of the rods and cones need considerable modification, which he describes in detail.

144. **Movements of the Thorax.**—Bocher gives an illustrated description of an apparatus devised to record the movements of the thorax. He calls it the "differential respirometer," and relates a number of instances of its use and of the important information derived therefrom. The difference between the excursions of each half of the thorax frequently reveal the existence of lesions within before any other signs are evident.

145. **Pelvic Appendicitis.**—This form of appendicitis is considered less serious than other forms by Borgbjaerg, as there is less danger of peritonitis. The appendix is liable to be held down in the pelvis afterward by adhesions, which reduces the liability to recurrences. He describes 4 cases in detail to show the clinical peculiarities of this form and the indications for treatment. There is not the necessity for prompt radical operation here as in the other forms. The lesion soon becomes walled off; this should be favored by immobilization under careful supervision. One of his cases terminated fatally, and this was the only patient operated on. Perforation occurred in a gangrenous loop which had been deemed sound at the operation five days before. In 2 of his cases, the large tumors palpated through the rectum subsided spontaneously under medical treatment. One of these patients had not even

submitted to immobilization. Borgbjaerg emphasizes the importance of examination by palpation through the rectum, and advises this route for the incision when an abscess renders it necessary. He does not think that it is advisable to remove the appendix. When an abscess is found low in the pelvis during a laparotomy it should be drained from below, not through the laparotomy wound. The easiest route is through the rectum. The diet should be regulated after an attack of appendicitis to prevent constipation, as this is liable to favor recurrence of trouble.

146. **Treatment of Myxedema with Very Small Doses of Thyroid Extract.**—Alsted reports a case of myxedema in a woman of 60. The illustrations confirm the entire recovery of the patient under thyroid treatment instituted on the principle of gradually increasing doses, commencing with doses so small as to have actually no action or next to none. For two months the daily dose was only .5 cg. and then 1 cg. was taken and continued every day. By the end of six months the patient was as well as before the onset of the myxedema, and has kept well during the year since, still continuing her daily dose of 1 cg. of the extract, representing only about one-thirtieth of a lamb's thyroid gland.

148. **Treatment of Exophthalmic Goiter with Blood of Thyroidectomized Goats.**—Christens has treated 18 patients and reports very encouraging results. The goats had been thyroidectomized, and he wanted to use their serum to inject into his patients as the theoretically preferable technic. But this mode has so many disadvantages that he tried giving the desiccated blood, powdered and mixed with gum arabic to form tablets, containing each about .35 gm. The treatment is symptomatic, requiring to be kept up continuously, the same as thyroid treatment in myxedema, but the great improvement observed justifies its use. The nervous tension relaxed, the patients were able to sleep better, digestion and nutrition were very much improved, the sweating and tremor ceased, and the patients increased in weight. In the mild cases it arrests the progress of the disease, and in the severer ones it protects the organism against further damage from the toxin. Treatment by the milk of thyroidectomized animals has several disadvantages, among them the fact that the milk secretion soon dries up in the animals after removal of the thyroid. He appends the clinical histories of a number of typical cases to show the constant improvement with 2 or 3 of the blood tablets daily. He urges a trial, at least, of organtherapy in every case of exophthalmic goiter, although, of course, it can have no influence on already established organic changes.

149. **Treatment of Joint Affections by Injection of Vaselin.**—The Journal chronicled two years ago Delagénière's success in treating a case of arthritis of the shoulder by local injection of vaselin. Rovsing now reports this treatment applied in 2 cases of "dry" arthritis. He used much larger quantities than Büdinger, who recorded last year 4 cases treated with 10 c.c. in one and 2 to 4 c.c. of the vaselin in the [illegible]ers. The results were much better in the patient treated [illegible] the larger amount. Rovsing's first patient was a woman [illegible] with congenital dislocation of the left hip. It had been [illegible]fully corrected for years, but finally began to give [illegible]ider. [illegible]coming very painful. Various attempts were made [illegible]tion [illegible]his, but the pains persisted at the slightest attempt [illegible]t [illegible]imb. He then injected 10 c.c. of warm vaselin [illegible]he capsule. There were severe pains and slight [illegible]first, but these soon subsided, and the patient [illegible] been freed from all pain in the joint. This [illegible]s, when the symptoms returned. He was [illegible]ex[illegible]mount injected had been too small to [illegible]re [illegible] the capsule. Consequently he opened [illegible]ment [illegible]m, and injected 25 c.c. of vaselin into [illegible] interna[illegible]ncision over the trochanter. There [illegible] the spa[illegible]ut no temperature, and when the [illegible] from [illegible] to[illegible]ded, all pains in the joint had [illegible]ication of a [illegible]here has been no recurrence to [illegible] to the parts, [illegible]lf after the intervention. The [illegible] with the silver [illegible]8, with ankylosis of the right [illegible] through the endosc[illegible]t puberty. He was able to [illegible]bilitating daily hem[illegible]ar before, when there were pains and cracking sounds in the other hip joint. They increased until he was unable to use the limb. Rovsing believed that the trouble was merely inflammation without effusion, due to the extra demands made on this hip. Under ether, 20 gm. of vaselin were injected through a puncture hole. There was no reaction, and in four days the patient was walking and using his limb freely without pain or cracking in the joint, and there has been no return of the pains during the ten months that have since elapsed. Rovsing has since treated a third case with equal success. He remarks that there need be no fear of embolism if the needle is inserted until its tip can be moved freely around in the cavity of the capsule. He thinks that these injections will be found a very valuable aid in the treatment of arthritis without effusion, of almost any origin. His first patient was operated on in April, 1902, more than a year before Delagénière's first publication on the subject.

## Books Received

Acknowledgment of all books received will be made in this column and this will be deemed by us a full equivalent to those sending them. A selection from these volumes will be made for review, as dictated by their merits, or in the interests of our readers.

The Drug Trade in Foreign Countries. Vol. xiv. Reports from the Consuls of the United States on the Laws and Regulations Governing: 1. The Drug Business. 2. Druggists v. Pharmacists. 3. Exports of Drugs and Chemicals. 4. Imports of Drugs and Medicines. 5. Sale of Drugs and Medicines in Lay Stores. 6. Disposal of Prescriptions. 7. Renewal of Prescriptions. 8. Practice of Pharmacy. Issued from the Bureau of Foreign Commerce, Department of State. Paper. Pp. 417. Washington: Government Printing Office. 1898.

Colonial Administration, 1800-1900. Methods of Government and Development Adopted by the Principal Colonizing Nations in Their Control of Tropical and Other Colonies and Dependencies, with Statistical Statements of the Area, Population, Commerce, Revenue, etc., of Each of the World's Colonies. Including Bibliography of Colonies and Colonization Prepared by the Library of Congress. O. P. Austin, Chief of Bureau. Paper. Washington: Government Printing Office. 1903.

Diseases of the Blood (*Anemia, Chlorosis, Leukemia, Pseudoleukemia*). By Dr. P. Ehrlich, of Frankfort-on-the-Main; Dr. A. Lazarus, of Charlottenburg; Dr. K. von Noorden, of Frankfort-on-the-Main, and Dr. Felix Pinkus, of Berlin. Entire Volume Edited, *with Additions, by Alfred Stengel*, M.D., Professor of Clinical Medicine, University of Pennsylvania. Fully Illustrated. Cloth. Pp. 714. Price, $5.00 net. Philadelphia: W. B. Saunders & Co. 1905.

A Text-Book of Medical Chemistry and Toxicology. By James W. Holland, M.D., Professor of Medical Chemistry and Toxicology, and Dean, Jefferson Medical College, Philadelphia. Fully Illustrated, Including 8 Plates in Colors. Cloth. Pp. 600. Price, $3.00 net. Philadelphia: W. B. *Saunders & Co.* 1905.

Proceedings of the American Pharmaceutical Association at the Fifty-Second Annual Meeting held at Kansas City, Mo., September, 1904. Also the Roll of Members. Cloth. Pp. 1,034. Baltimore: *Published by the American Pharmaceutical* Association. 1904.

The Preparation and After-Treatment of Section Cases. By W. J. Stewart McKay, M.B., M.Ch., B.Sc., Senior Surgeon of the Lewisham Hospital for Women and Children, Sydney. Cloth. Pp. 651. Price, 15 shillings net. London: Bailliere, Tindall & Cox. 1905.

Die Direkte Besichtigung der Speiserohre Osophagoskopie. Ein Lehrbuch für den Praktiker. Von Prof. Dr. Hugo Starck, Heidelberg. Mit Drei Farbigen Tafeln und Zwanzig Abbildungen. Paper. Pp. 219. Wurzburg: A. Stuber's Verlag (C. Kabitzsch). 1905.

Infantile Mortality and Infants' Milk Depot. By G. F. McCleary, M.D., D.P.H., Medical Officer of Health of the Metropolitan Borough of Battersea. Cloth. Pp. 135. Price, 6 shillings net. London: P. S. King & Son. 1905.

A Hand-Book of Nursing. Revised Edition. For Hospital and General Use. Published under the *Direction of the* Connecticut Training-school for Nurses. Cloth. Pp. 319. Price, $1.25. Philadelphia: J. B. Lippincott Co. 1905.

The Open-Air Treatment of Pulmonary Tuberculosis. By F. W. Burton-Fanning, M.D. Cantab., Physician to the Norfolk and Norwich Hospital. Cloth. Pp. 176. Price, $1.50 net. Chicago: W. T. Keener & Co. 1905.

Diseases of the Heart and Aorta. By Thomas E. Satterthwaite, M.D., Professor of Medicine in the New York Postgraduate Medical School. Cloth. Pp. 304. Price, $3.00 net. New York: E. R. Pelton.

Nineteenth Annual Report of the State Board of Health and Vital Statistics of the Commonwealth of Pennsylvania. Vols. I and II. Cloth. Pp. 1,102. Wm. Stanley Ray, State Printer of Pa. 1904.

A Reference Handbook for Nurses. By Amanda K. Beck, of Chicago. Bound in Flexible Morocco. Pp. 150. Price, $1.25 net. Philadelphia: W. B. Saunders & Co. 1905.

Report of the Trustees of Bellevue and Allied Hospitals for Three Months ending June 30, 1904. Paper. Pp. 13. New York: M. B. Brown Co. 1904.

Fourteenth Annual Report of the Ohio Hospital for Epileptics, at Gallipolis, for the Year 1904. Paper. Pp. 59. Columbus: F. J. Heer. 1905.

Twenty-Seventh Annual Report of the Board of Health of the State of Georgia for the Year 1904. Paper. Pp. 65.

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## *Original Articles*

# THE CURABILITY OF EARLY PARESIS.*

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NEW YORK.

I wish to present what to my mind is convincing evidence that paresis, in its very earliest stages, in that stage which may be called one of "præparesis," is a disease that sometimes can be arrested. This arrest may be permanent, and may be attended with so little mental defect that one may call the patient practically cured.

### PARESIS, TABES AND SYPHILIS.

It is now quite generally admitted that paresis is almost always a parasyphilitic disease; that is to say, one which is due to the late and degenerative influence of a luetic poison. Paresis is also looked on as a disease which has the same relation to the brain that tabes dorsalis has to the spinal cord. This relationship, indeed, is so often and so plainly observed that it can be considered a proved clinical and pathologic fact. We find, for example, in from 5 to 10 per cent. of the cases of degenerative syphilis of the nervous centers that the patient suffers both from paresis and from tabes, and has what is termed "tabo-paresis," the paresis gradually associating itself with tabes, or *vice versa.*

### THE ARREST OF TABES.

Now, nothing is more clearly established than the fact that tabes dorsalis is often arrested in its early stages, so that a patient may live for 10, 20 or 30 years, and exhibit no practical progress or change in his symptoms. I have a number of patients under observation who illustrate this undoubted condition; and my experience, I am assured, is the common one.

If, then, tabes may be arrested in its early or pretabetic stage, there seems no reason to suppose that we can not also arrest and cure paresis in its earlier stage, and this is what I believe can be done.

The cases which I report, taken in connection with other clinical experiences which it is impossible to present without making my paper too long, have been sufficient to make me feel quite sure of my position in the matter. I am not asserting that paresis, when it is once well established, can be cured. In fact, I do not think it can be; and I know of no more hopeless malady when it has once got a full start.

Paresis not infrequently shows remissions, and these remissions may be prolonged to one or two, or even to five or six years. In these remissions, however, the mind, by no means, is restored to its original tone or vigor. The patient has only a "let-up," and is never the sound, vigorous-minded man he was previously. My patients have been more than cases of remission; their condition of mind and body has been restored, practically, to a normal level. I am not asserting the existence of remissions in paresis; that is one of the admitted features in the natural history of the disease. What I do assert is that in some cases in which the patient has shown unmistakable evidences of a degenerative and paretic process starting in the brain, this process has been arrested, evidences of it have even sometimes entirely disappeared, and the patient has gone on with his usual work.

I have not yet had patients under observation for a sufficiently long period of years to enable me to say that the paresis will never return. I can only argue from analogy in the cases of tabes dorsalis, and since we know that here the arrest of progress is sometimes permanent, we may legitimately infer that when it has occurred in paresis in the same way it may also be permanent. I would say, further, that there is nothing *a priori* impossible in the idea that paresis may be arrested and cured when it first starts in. We are able to arrest degenerative processes in other parts of the nervous system; we arrest degenerative processes, or we see them arrested, in the kidneys, in the liver and in other organs. Given a vigorous constitution poisoned with disease, it may well be that when it is put under the best possible conditions for fighting this poison, when its known antidote has been administered with heroic thoroughness, we might expect that the tendency of the tissue to die may cease.

### PSEUDOPARESIS.

Also, in speaking of paresis, I wish to be understood that I am speaking only of general paresis or paralytic dementia, not of the so-called "pseudoparesis" of alcoholics or the "pseudoparesis" of syphilis. I have used these terms personally, and I know they are widely adopted as convenient expressions. I do not think, however, that this term, "pseudoparesis," is a very fortunate one, inasmuch as the disorders above mentioned are essentially simply forms of organic dementia, with an entirely different pathologic basis and clinical course from the real paresis. The so-called pseudoparesis of alcoholism, for example, is only an organic dementia, due to the connective tissue proliferation, the vascular changes, and the cellular atrophy brought on by the continued use of alcohol. The pseudoparesis of syphilis is simply a dementia brought on by the exudates of syphilis, leading to more or less severe secondary changes in the meninges and in the vascular supply. It is really an organic dementia, due to an exudative inflammation of the meninges and blood vessels. In true paresis the organic changes are comparatively slight at the beginning, and are probably mostly of a parenchymatous nature. There is no exudate and no early gross organic change. It is true, however, that in the early stages of paresis there may be some slight amount of luetic exudate, and that perhaps the degenerative changes in the cell are started by this process. We know also that there are cases of paresis in which there are both true primary degenerative changes and real syphilitic exudates present at the same time, so that the patient may be said to be suffering both from brain syphilis and from a paresis. It is strictly analogous to the conditions which occur in a spinal cord, where at times there may be a true tabetic degeneration and at the same time a decided syphilitic exudate, so that we have both locomotor ataxia and spinal syphilis together.

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*Read at a meeting of the Psychiatrical Society of New York, 1904.

It is at this point that the weakness of my case, as I freely admit, may lie. It may be and probably will be contended that the cases which I assert are in the stage of "præparesis" are really cases only of slight exudative brain syphilis, and that my patients have simply been cured of a slight degree of a perhaps rather diffuse vascular and meningitic exudate. To this I can only reply that I have many times seen precisely this class of cases passing directly into a condition of true paresis, and that in all of my cases where there were admittedly some symptoms of syphilitic exudate, or some kind of gross organic lesion, there were with it also decided psychical and somatic symptoms, such as occur only, or mainly, in connection with the degenerative process of paresis. An Argyll-Robertson pupil, for example, is the sign of the onset of a degeneration, not of exudation. At the very most, while admitting that my opponents may be academically right, I would claim that they are practically wrong, for the reason that, basing my argument on experience with other cases, I feel sure that all or nearly all of these patients would have gone into a condition of true paresis if they had been let alone. Thus, when a patient who has given a distinct history of syphilis develops a form of agitated melancholia, and at the same time shows signs of cerebral degeneration, like the Argyll-Robertson pupil and disturbances in the knee reflexes, I should certainly be apprehensive that, under ordinary conditions, he would eventually develop a paresis, for I have seen a number of patients who entered paresis through this peculiar gate of melancholia, with somatic signs as indicated.

Again, if a patient with a history of syphilis, after a certain period begins to develop convulsions and shows Argyll-Robertson pupils, exaggerated reflexes, then begins to develop symptoms of loss of memory, change of character and disturbances of the instinctive feelings, I should feel very certain that if left alone he would pass into the condition of paresis, for it is through the gate of convulsive disturbances, epileptiform seizures and peculiar somatic signs that paresis sometimes develops.

Still further, when a patient, who gives perhaps a doubtful history of syphilis but whose life is such that he might easily have been subjected to it, and who has a headache, an eye-palsy, and previous to that has for some time shown great extravagance in action and ideas, with a decided change in character and weakness of memory, I would here also feel very sure that a paresis was developing.

Having observed the total disappearance of all these symptoms, under treatment, and the restoration of the patients practically to their former health, it has seemed to me that I may be right in claiming that it is possible to arrest for an indefinite time a disease which is certain to become a general paresis.

With these preliminary remarks, I submit the following records. They are not published in every detail because it seemed to me not necessary. I have given the salient facts with regard to the symptoms and course; besides this, the patients were all private patients of my own or of physicians who referred the cases to me, and some of the patients were men of prominence, whose intimate lives and identity I should dislike to expose. The histories should perhaps carry greater weight for the reason that they are not records of hospital or dispensary cases, in which data are often uncertain and the mental development of the patients of mediocre type:

### CASE REPORTS.

CASE 1.—M. S., aged 40, married; occupation, broker.

*History.*—Family history shows a very bad indirect heredity. The patient had an infection before he was 20, which was treated. He had had seven healthy children. He had led a life of much social activity and business excitement. Three months before I saw him he began to get ideas of poverty and self-reproach, and when I saw him he had a distinct melancholia.

*Examination.*—The pupils were unequal, the left larger than the right; both distinctly Argyll-Robertson in type, though the right reacted very feebly to light. He claimed, however, that the left pupil had been larger than the right for fourteen years, and that this condition was due to a sunstroke (?). The left knee jerk was lively, the right weak. He had some tremor of the hands, but none of the face. There was no speech disturbance. He had had no seizures. Mentally he showed no dementia, but only a very profound and anxious depression, with some delusions of poverty and self-accusation. He suffered from insomnia, but had no headaches, and had no cranial nerve palsies except those of the eyes, and no disorders of the spinal centers or ataxia.

*Treatment and Result.*—He was seen by two physicians, one a very competent neurologist, who thought that he was developing paresis. He was sent to a sanitarium, where he was put under active treatment. In six months he came back practically well. The pupil of the right eye had become normal; the left was the same as before; knee jerks same as before. He has continued well and has been in active business now for over three years.

CASE 2.—J. D. H., aged 37, married; merchant by occupation.

*Family History.*—Direct heredity good; one sister had epilepsy; no other neuroses in the family.

*Personal History.*—He had a luetic infection twelve years ago. He was a man of temperate habits, but worked extremely hard. About two years before I saw him he began to run down and complained of sensations of pressure on the side of his head, which symptom continued very persistently.

*Examination.*—The pains and paresthesias extended down the back of the neck and into the shoulders. In other words, he had the annoying head, neck and shoulder paresthesias seen in beginning paresis. As his condition grew worse he began to be drowsy, and apparently required more sleep than normal. Three weeks before I saw him he had had two convulsions of an epileptiform character. At that time he was emotional and depressed, crying easily, and having apprehensions about his mind giving way. When seen by me he had been taking for some days 15 grains of bromid in the morning and 6 grains of trional at night. At this time he was depressed, his memory was poor, his speech was syllabic, but he had no tremor, and the pupils were normal, as were also the knee jerks. He was then having attacks of excitement at intervals with, at times, some brief delusions, but no hallucinations. He complained of his head and was very depressed and apprehensive. He appeared to me to have the physiognomy of a patient likely to develop paresis, and the history of convulsions, his speech disturbance, his feeble memory and his melancholia, all pointed in that direction. At the time I made a diagnosis of paresis, with a question mark.

*Treatment and Result.*—The patient was sent to the Watkins sanitarium, where he remained for several months under the care of Dr. King. He had one more convulsion. He returned much improved and gradually recovered. He has continued well to the present time, which is four years from the period when I first saw him.

CASE 3.—B. R., aged 34, married; occupation, business. Family history negative.

*History.*—He has smoked a great deal. At 18 he had a luetic infection and "secondaries," and was treated for two years. Since that time he has had occasional periods of depression. In the two months before his visit to me he had again become very much depressed and melancholy.

*Examination.*—When seen by me he had no objective symptoms of any form of nervous syphilis. A week or two later he complained that at times he had shooting pains in the legs, the right pupil was then larger than the left, but the pupils both reacted to light and to accommodation. The reflexes were present, and he had no ataxia.

*Subsequent History.*—I lost sight of him then, but saw him again six months later. He then complained that his memory was poor, and that he was unable to concentrate his mind at business. He felt generally weak. His speech was not perfectly good, his articulation being somewhat thick at times, and he now had a distinct facial tremor and Argyll-Robertson pupils. His symptoms in general were those of forgetfulness, inability to concentrate the mind, occasional headache, and depression at times, though this had improved of late. This, it seemed to me, was sufficient to justify a diagnosis of probable paresis, and what I at first considered to be merely a mild attack of melancholia seemed now to be probably a very serious condition.

*Treatment.*—He was placed on mercury and tonics and sent off to rest. He steadily improved, and at the present time, now three and a half years since I last saw him, he is perfectly well and has been attending to his work for the last three years.

*Remarks.*—This might, perhaps, be interpreted as a case of recurrent melancholia with cerebral syphilis, but I think that, at least, with the speech disturbances, Argyll-Robertson pupil and facial tremor in mind, we may assume that a paresis would naturally have developed.

CASE 4.—J. R. K., aged 30; lawyer.

*History.*—He had an infection ten years before and was thoroughly treated for four years; he had had "secondaries," and during the last three years had had throat trouble, but not of a specific character. His habits are good, except that he has been a very hard worker. Two years before I saw him he began to have a slight amount of ataxia, and at the same time had some deafness. Six months ago the ataxia was very much better. One month ago he had pain in the eyes and diplopia, due to a paresis of the right externus.

*Examination.*—The fundus was normal. He had Argyll-Robertson pupils. He had great exaggeration of the patellar reflexes, no ankle clonus nor Babinski sign, some ataxia on standing and locomotion; mentally he was very nervous and excitable; he was unable to concentrate his mind and had some impairment of memory.

*Remarks.*—The diagnosis was made of impending tabo-paresis. This was two years ago. Since then he has been steadily improving and became able to resume work. He has now been attending to his work as a lawyer regularly for nearly two years, and though still ataxic and not by any means well, his mental and physical trouble at least has been improved and arrested.

CASE 5.—S. B., aged 40, married; broker. Family history is good.

*History.*—He has always been a very hard-working man; he has smoked immoderately and drank moderately. He had a luetic infection five years ago, with "secondaries," which were thoroughly treated. I saw him first in October, 1903. For nearly a year previous his mental condition had been changing. His wife had noticed that he was more morose, less inclined to social life, often unreasonable, and irritable and forgetful. This was simply attributed to his overwork and to the excitement of his occupation. In August, 1903, he had an epileptiform attack during the hours of business. He recovered from this promptly and continued his work. Later, in the month of October, he had another epileptiform attack at night, followed by a period of maniacal excitement, lasting for one or two hours, in which he became quite violent.

*Examination.*—I saw him the next day. He was a large, robust man, with a very healthy physiognomy. Mentally he seemed practically normal, although he was naturally much disturbed and apprehensive over what had occurred. He exhibited to me no traces of forgetfulness or ideas of grandeur. Physically he had distinctly the Argyll-Robertson pupils, and the knee jerks were exaggerated; there was no facial tremor or hand tremor. The writing was normal. He had no lightning pains and no paresthesias.

*Subsequent History.*—This patient has now been under observation for over a year. For some time he showed an abnormal exhaustibility and irritability, of both body and mind, so that he tired very easily in walking, and had a disinclination to the mental activity involved in social intercourse. His disposition was for some time a good deal changed; he was morose, childish and suspicious of his wife, unreasonable and irritable. He, however, never showed any lack of judgment or any forgetfulness in business affairs; he was only childish in his domestic and in certain social relations. After about six months the pupils, which had been stiff, became normal the knee jerks remained about the same. He had no further convulsive seizures. At the present time this patient seems in every way to be a normal man. He had not had any severe headaches, no lightning pains, no disturbance of the spinal centers.

*Remarks.*—The probability of an impending paresis was based on the very marked syphilitic infection, which had been rather obstinate in his case, and the occurrence of two convulsions, without previous headaches, the change in his disposition and character, the forgetfulness about things in his domestic relations, a carelessness of speech and manner, which were not natural to him, and the condition of his pupils. His own physician, Dr. Sherwell of Brooklyn, and with whom I had several talks about the case, shared with me, I think, though perhaps to a less degree, the fear that he might develop paresis. This was the club held over his very impetuous nature which obliged him to change entirely his mode of life, and by reason of which I think he escaped the catastrophe.

CASE 6.—H. B., aged 43, married; occupation, broker. Family history unknown.

*History.*—The patient, from boyhood, had always been a very hard-working, excitable man. He had lived a pretty fast life, drinking considerably, but he was not a smoker. He was a man whose habits of expression and thought were always very extravagant, and whose business dealings had been, normally, of a very large kind. He denied any specific infection, but I am sure he had lived a life which would have exposed him to it. In the spring of 1904 he was under a specially severe strain and had lost a good deal of money. In June he had a paresis of the left internal and right external rectus for which he consulted Dr. Koller, who kindly referred him to me.

*Examination.*—When I first saw him in July he talked in a very extravagant and excitable way, telling me remarkable stories about his business, which I believe were more extravagancies than actual delusions, and I learned from his friends that this was his way of talking. He had double vision on account of the internal rectus of the right eye. His pupils were dilated, the left larger than the right, and neither reacted to light, but reacted to accommodation; the optic nerve and vision were normal. He had a fine tremor of the hands, but none of the face or tongue, and speech seemed clear, though occasionally there was a little slip; his writing also was fairly good. The knee jerks were somewhat exaggerated, but there was no clonus. He had no ataxia and no lightning pains. The bladder and sexual functions were normal. The memory did not seem impaired.

*Treatment.*—He was given a course of hypodermic injections of mercury, and then went to Europe for six weeks, where he became more depressed. On his return he continued under the treatment of Dr. Koller for his eye condition. He gradually improved, both mentally and physically, until now his eye is nearly normal; he has no tremor, the knee jerks are less exaggerated, and his mental condition is, perhaps, better than it ever was in his life.

*Remarks.*—This case might be interpreted as possibly one of paresis, with a remission, but I feel very confident that he did not have a frank attack of paresis when he came to see me, and that he was then suffering only from a sort of grandiose excitement, with Argyll-Robertson pupils, and an eye palsy. A little further delay and he would have been fairly a paretic.

Case 7.—This case was less striking than the others, but, taken in connection with them, it has significance.

*Patient.*—J. H., aged 46; family history good; designer.

*History.*—He had syphilis at the age of 23 and was treated thoroughly by specialists. At 34 he had some mental depression and rheumatic pains. He was relieved by hypodermic treatment with mercurials. He married at 37 and had a healthy child. At 46 he had nervous attacks consisting of agitation and trembling, and he has also had a good deal of dyspepsia. On this was engrafted an "anxious depression" or mild form of hypochondriacal melancholia, which did not keep him from work. He had no objective symptoms, but complained of his depression and dyspepsia. He gradually recovered, but a year later complained of entire loss of sexual power, annoying failure of memory, difficulty in concentration and work, and dyspeptic symptoms. This condition continued for a year, with some remissions, but finally he reported himself as practically well of everything but his sexual weakness. He had no symptoms of tabes at any time, except his sexual weakness. I watched constantly for the development of signs of paresis, but he had only the failure of memory, inability to concentrate his mind, and the initial melancholia.

The patient, from the time he was 34 till he was 46, took courses of mercury by injection. At first he took an injection every two weeks for two years. They acted on him as a tonic, the effect lasting for a week or more. Later he took the injections at much longer intervals.

These histories, I might repeat, may seem to present inconclusive evidence of the real existence of paresis. I think, however, that most of those who are familiar with such cases will admit that they have seen paresis beginning in this way and going on to the full-fledged condition. Such cases certainly have occurred in my experience, and usually after these initial symptoms were already matters of the previous history.

The importance of recognizing paresis before it is in a way real paresis is the very evident lesson of these histories.

## TREATMENT.

In conclusion, I would say a word only in regard to the treatment of these conditions. It seems to me that if the cases are recognized early there is no need of any very novel methods of treatment; there were none employed here. I believe that the patients should at once be turned entirely from their former modes of life; that they should be sent where they can get rest and fresh air; that they should receive, if possible, hypodermics of the bichlorid or salicylate of mercury, and that this should be accompanied or followed with iodid of potassium and tonic measures. I attach special importance to the effect of hypodermic medication, though all the patients did not receive it. It is not always necessary to give large doses, i. e., gr. 1/4 twice a week is sometimes enough, but this may need to be kept up for two or three months. In other cases gr. ii or even gr. iii once or twice a week are required. The technic requires care. During the course of treatment there should be a very liberal use of lukewarm and hot bathing (a warm bath every day and a hot bath once or more weekly), and every possible attention should be given to the general nutrition of the patient.

With these measures I believe that a good proportion of persons who are threatened with paresis can be permanently helped, and it is my hope that the medical profession will become trained to recognize these cases so quickly that before many years we may get the same gratifying results in paresis that we do in tabes.

I have to express my obligations to Dr. Carl Koller, Dr. Alex. Duane, Dr. Samuel Sherwell, Dr. Jas. K. King of Watkins, and Dr. Sollace Mitchell of Jacksonville, Fla., for referring some of the cases to me, for aid in treatment and for furnishing me special notes for the histories.

## DISCUSSION.

Dr. A. E. Macdonald does not think that the diagnosis of the cases reported by Dr. Dana, except the first one, was conclusive. In such cases he looks for just such a suspension of the symptoms as described by Dr. Dana. He has often found it a very difficult thing to satisfy the friends of such patients that treatment should be continued because the improvement is so marked that they object to the patient remaining longer in the hospital and claim that he has recovered.

Dr. Adolph Meyer said that it is difficult to say when general paralysis can be considered as established. The first case that Dr. Dana quoted was such as could give rise to little doubt, with its marked expansiveness, yet Dr. Dana took pains to describe it as one of but slight exaggeration of attitude of the normal Wall street man. A great deal of weight would have to be placed on forgetfulness and on inconsistencies. In one of the cases very little forgetfulness and no dementia was said to be present in the account of the case, but from a retrospective point of view, in the statement that the patient has recovered, he is said to have recovered from his dementia. The fact of there having been distractibility of attention before is then interpreted as a beginning dementia. It is exceedingly difficult to demonstrate with any certainty whether one is dealing with an actual deterioration of memory for several reasons. A physician should be especially cautious in the use of the term dementia when the only evidence is a certain feeling of insufficiency in the patient, an exhaustibility, and in the interpretation, as he may be influenced by the suggestion that the patient has had syphilis. One would naturally think that since general paralysis is a disease with a definite, generally slow evolution we should come across "*formes frustes*" which are merely approaching the period of decided development. The cytodiagnosis should be positive, a point of value, although the ordinary forms of syphilitic affection have also positive reactions and not only general paresis. The question of what constitutes paralysis has lately been brought under consideration by Nissl, who has split off a diffuse cerebral syphilis, and especially by Gaupp, who has lately reviewed carefully the cases of so-called recovery from general paralysis.

Dr. L. Pierce Clark said that the histories of the cases Dr. Dana presented are suggestive of paresis and, in most of the cases, he thought all would reach the same tentative diagnosis. The final termination, however, would show the error in diagnosis. We must demand the established clinical entity of paresis, particularly mental deterioration. General paresis may present a period when deterioration is but slightly in evidence, possibly a diagnosis at such a time would more nearly approximate the contention of Dr. Dana. Dr. Clark's opinion in the matter of the curability of paresis centered on the question of early diagnosis. It has not been proven that such a diagnosis is yet possible. In his asylum experience, cases are often admitted so early in general paresis that another diagnosis is entertained for a long time, yet recovery never occurs. In such cases remission and non-progression of the disease is often present for several years, yet the cases ultimately terminate in paresis. If iodids and mercury are at all effective in suspected cases then the diagnosis of paresis is doubtful. He has never known paresis to be favorably influenced by these drug agents. Improvement and remission, on the other hand, are brought about by general care, hydrotherapeutics, diet, rest and quiet, simple living. Paresis from a chemico-pathologic. as well as a clinical viewpoint, is a parasyphilitic affection, a postsyphilitic toxic disease. It is beyond the reach of antisyphilitic remedies, and it is important to remember also that in many undoubted cases of paresis these drugs do harm. He looked on Dr. Dana's first case as one of probable paresis with remissions; he thought the others were anomalous types of cerebral lues. He thought that the curability of early general paresis is mentally conceivable, but that we are very far from realizing its practical accomplishment at present; therefore, it may be classed as one of the most hopelessly incurable mental diseases.

**Dr. Flavius Packer** said that those who are engaged in asylum practice must look on paresis as practically incurable. He has seen cases which presented long periods of remission yet they returned. and when he was satisfied with the diagnosis the incurability of the disease has never been questioned. One patient left the hospital and was away a year and a half when he returned.

**Dr. Carlos F. MacDonald** thought that the correctness of Dr. Dana's attitude respecting the curability of paresis hinges on the correctness of the diagnosis. His view of paresis, or more properly, general paralysis of the insane, is that this is a form of insanity having a distinct entity and essentially different from any other form of insanity, just as scarlet fever differs from smallpox, having its own pathology and clinical history. with a characteristic combination of diagnostic symptoms which alone would warrant a diagnosis. Many writers speak of making a diagnosis of paresis without mental symptoms but he contended that this is a very difficult thing to do in any form of insanity. Without mental symptoms one can scarcely make a diagnosis of mental disease. Paresis, at the outset, has somatic symptoms which sometimes precede the fully developed mental symptoms. He has long since come to regard paresis as an absolutely hopeless form of disease so far as recovery is concerned. He is inclined to question the correctness of Dr. Dana's diagnosis made in the predeveloped stage of the disease if those patients fully recovered. The first case cited struck him as being a well-marked, almost typical case of paresis, both as regards the mental and the physical symptoms. He would regard the patient's declarations as evidence of a pronounced delusion; also that he was in the delusional state was shown by his manner and appearance as described. Dr. MacDonald has never known a complete and permanent recovery from true paresis, and he has been led to doubt the diagnosis in many cases. but he has never known an authentic recovery from paresis. Those cases that have recovered were in his opinion not true. but pseudoparesis, probably of the syphilitic or alcoholic variety. He asked Dr. Dana how he would classify those cases which are described and classified by most writers, as pseudo general paresis, either alcoholic or syphilitic. He said that in a considerable number of cases it is doubtless true that syphilis must be regarded as an etiologic factor, but there is a certain proportion in which syphilis does not enter as a cause. He could not understand how one would be justified in assigning syphilis as a cause in those cases in which there is no evidence whatever of syphilis in the history. He quite agreed with Dr. Dana that occasionally, though rarely, cases of paresis improve, both mentally and physically, sufficiently to enable them to return to their homes and to resume their business and social relations for a time, but in his opinion, such cases never make a true recovery, and if the diagnosis has been correct, they invariably relapse and eventually terminate fatally.

**Dr. William Hirsch** thought that. up to the present time, the feeling in general has been that general paresis is an incurable disease. He has always taken the standpoint that when a case has been diagnosed as general paresis and, after a reasonable time. the patient seemed to get well, that a wrong diagnosis has been made.

The question whether general paresis in the early stages is a curable disease or not should not result in *a priori* statements before we have absolute evidence for calling it an incurable disease. He regarded the first case as one of remissions and did not agree with Dr. Dana that with these remissions the patient may recover so long as the remissions remain; he regarded the remissions as only a partial recovery. He mentioned one case in which the patient has been treated in an institution many years. The patient was an officer in the German army and had a clear case of general paresis. He had all the classical symptoms. He was engaged to the daughter of a general. After six months he had his remission; it was such that his family insisted on his going home and he was, therefore, discharged. The family was told regarding his condition, that he was not cured but only had a remission. He asked permission to marry but did not seek medical advice. He married and remained apparently well for one year and his wife gave birth to a healthy child. After one year the disease developed and he died within a year of general paresis. During this one year he had been perfectly well, all the somatic and mental symptoms having entirely disappeared. This is only one of many cases that he could report where the remissions have been such that nobody could find any symptoms of any kind. The minds cleared up perfectly. He believed that one should be extremely careful in drawing any conclusions as to the curability of the disease and one should demand that three or four years should elapse before drawing any conclusions.

In Dr. Dana's second case one should consider the differential diagnosis between general paresis and lues cerebri and this is often very difficult. Some of the cases present all the classical symptoms of cerebral syphilis and some of cerebrospinal meningitis. One of the chief differential points relates to the reflexes; when there is a difference in the patellar reflex the point is in favor of syphilis. In general paresis, the patellar reflex is exaggerated or absent. The same applies to the pupil reflexes. The diagnosis of general paresis and of syphilis is extremely difficult especially during the early stages. If the patient recovered under antisyphilitic treatment he would always leave it open whether or not the case was one of cerebrospinal syphilis. He said that he is a firm believer in the importance of syphilis as an etiologic factor in these cases but undoubtedly there are cases of general paresis in which there is no history of syphilis at all. He referred to a patient from San Francisco who had general paresis; in this instance it could be proved beyond a doubt that there was no history of syphilis. He said he knew of several cases where syphilis was not ony denied but it could be proved that it was not present. If it were necessary to demand mental deterioration in making a diagnosis of the early stages of the disease, one could never make such a diagnosis. He believed that physicians, as a rule, are proud of the ability to make diagnosis of general paresis so much earlier than they did twenty or thirty years ago. The question should be left open whether or not general paresis is curable.

**Dr. Allan McLane Hamilton** said that, so far as his experience goes, he has never seen a case of true general paresis cured. The cases that have recovered have been those of alcoholism, the pseudoparesis of Fournier, and obscure examples of drug habits. He could not imagine such serious conditions as those described by Dr. Dana with profound organic changes. and generally absent deep reflexes, where the treatment employed, or in fact any other, could have given such astonishing results.

**Dr. Charles L. Dana** said that he believed that a more conservative view must be taken of this question of the curability of paresis and he thinks that most of the criticism of his position is based on misapprehension. He used the term cured or arrested with reference *only* to the early stage of paresis, a stage for which the term preparetic may be applied. He had seen personally a large number of patients in whom the symptoms described in his paper occurred but then had gone on to develop general paresis in spite of treatment in some cases. or without any treatment in others. If one would go back in the history of two paretics two or three years before the patients reached a hospital one would find. in a considerable proportion of cases, that they had had precisely the same conditions he had described in his paper; and he believed that it was the duty of psychiatrists and neurologists to be able to recognize the condition in the early stages when it is possible to stop the progress of the disease. He does not believe that they are able to stop the disease in any case unless it is diagnosed early. He does not claim that the cases he reported are real cases of general paresis as ordinarily described but only that they would become so. He agreed with Dr. MacDonald that when paresis is in full bloom it is an incurable disease. He said that he hesitated to bring up the subject of the relation of paresis to syphilis because he thinks the subject is a closed one. He believes that it is generally accepted that syphilis has the same relation to paresis that it has to tabes. Every year the proportion of cases of syphilis and paresis increases, and for practical purposes syphilis may be considered the chief factor in its production. In alcoholic pseudoparesis there is a sort of chronic mental deterioration or dementia and he prefers to call these cases alcoholic dementia rather than to use the term paresis, because these cases do not present any close resemblance to the picture of paresis. Syphilitic pseudoparesis is really an exudative cerebral syphilis taking the form of a general syphilitic meningitis or arteritis. Cases of so-called pseudosyphilitic pseudoparesis sooner or later develop a true paresis. Some of the cases he thinks it would be better to term organic dementia of syphilitic origin. He said that regenerative processes are not always progressive. He has even seen cases of progressive muscular atrophy of a typical kind arrested for years. In answer to a question Dr. Dana said that loss of the knee jerk is a clinical fact and that it is probably explained by the fact that there has been a syphilitic lymphangitis or exudate, and that when this is absorbed the reflex returns.

In answer to another question he said that in tabes sometimes there is both a degeneration and an exudation; the antisyphilitic treatment would remove the latter and the reflexes then would be restored.

**Dr. MacDonald** assumed that the symptoms of true paresis are both outward expressions of organic disease in the central nervous system, that is, in the central cortex and asked Dr. Meyer if it would not follow that the condition would necessarily be an irrevocable one?

**Dr. Meyer** said that is the burning question, especially since the investigations of Alzheimer and others have divided off a new process as a diffuse cerebral syphilis, distinct from the condition of a general paralysis process. Since these investigations the whole situation has been made more complex. Dr. Meyer stated that he believed with Dr. Dana that we should give all our attention to therapeutics, even though general paralysis be probable, and that we should at least strive for a remission as if the disease could be cured. He has doubts whether these really curable conditions are accompanied by the typical changes of paresis and can be verified anatomically. On the other hand, he has not had any cases of general paresis that he could vouch for clinically without showing definite changes in the central nervous system, organic changes with participation in it of the blood vessels, neuroglia, derangement of certain elements in the cortex, etc. He mentioned a patient of Dr. Howard, at the Rochester State Hospital, who had "general paresis" for two years, and who then passed into a paranoic condition with marked expansiveness and some paralytic symptoms of inconsistency, etc. When this patient was examined by Dr. Meyer a few months before he committed suicide, there still were a certain number of symptoms that could safely be classed as belonging to general paresis.[1] In this case there was only a residual of the disease process to be found, both clinically and in the microscopic examination. He said we must further admit that occasionally there are cases of protracted type, cases of general paralysis that cannot truly be described as "progressive" general paralysis, cases that become arrested for from ten to fifteen years or even more. Hence, we should not, *a priori*, exclude the possibility of a lasting remission at the outset.

**Dr. Dana** said that if the earliest symptoms of general paresis could be recognized it might be possible to arrest the process and the patient might become practically a healthy man; i. e., if the brain cells were not sufficiently destroyed by the paretic process to interfere with a sound mental action.

**Dr. Meyer** said that nature is evidently vicious regarding that point. The important point about general paresis seems to be finding out what makes general paresis a progressive disease. If one could determine that, much would be gained. But at present nothing of that sort is at hand.

**Dr. Dana** argued that there is an allied condition in tabes; in tabes the diseased process can be arrested and the patient have no more than simple tabetic pains.

**Dr. Hirsch** stated his belief that in general paresis as well as in organic diseases the clinical symptoms preceded what is called the anatomic changes. It is a fact that in very early stages when the clinical symptoms are developing, the microscope does not reveal changes in the tissues.

# PNEUMATOCELE OF THE CRANIUM.*

L. L. McARTHUR, M.D.
CHICAGO.

In calling attention to pneumatocele of the cranium I do so not with the idea of conveying some new or important information or advanced treatment, but rather to recall to mind a decided rarity, if we may judge from the few recorded cases, and to make easier, perhaps, the recognition of future cases.

What I can at least offer is the record of an additional case and a thorough résumé of the literature, which I will present as briefly as possible, with a synopsis of all recorded cases. These number as yet but 33, of which 23 were occipital, 10 frontal. With a full bibliography added it will be an easy matter in the future to make reference to this subject.

*Patient.*—A. C., aged 63, was admitted to the hospital May 26, 1902, and was operated on June 17, 1902.

*History.*—Two years ago the patient noticed a small tumor mass about the size of a bean just above and behind the ear; it grew to the size of an egg. It was lanced by Dr. Frank, but reappeared in four days and since has gradually grown to the present size. When the tumor is pressed the patient says "it feels like air coming from the ear." He has pain all the time over the tumor. He says that he can not hear from left ear; he never had earache.

*Examination.*—His general appearance is that of an aged man of good build. His muscular system is somewhat flabby.

Head: The eyes react to light and to accommodation. The right eye has a nebula on the cornea; the left eye has pterygium extending over the edge of the cornea.

Mouth: The upper teeth have nearly all disappeared except for a few roots. The tongue has a whitish coating.

Cranium: Over the left portion of the cranium, over the posterior inferior portion of the left parietal bone, over nearly the entire occipital bone and over the posterior portion of the left temporal bone is a large bulging tumor. The scalp covering is very tense but can be compressed against the bone beneath. A hollow tympanitic note is elicited on percussion. There is no fluctuation and no pulsation. The bone beneath seems thinned, and in some places small fragments can be moved about. No cerebral symptoms appear when pressure is exerted on the scalp. The contents of the tumor are not reducible. There are three areas where the bulging is more marked, as if there were separate compartments, and there is some pain on pressure.

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[1] A self-satisfied, unreasoning, expansive delusional system with peculiar inconsistencies, inability to give the date of marriage or the year of the birth of a son, *slight hesitancy of speech*, tremor of tongue, no elbow or thumb reflex on the left, exaggerated knee jerks, no eye symptoms, *unsteady* writing with omission of letters.

* Read at the Milwaukee meeting of the Western Surgical and Gynecological *Association*, 1904.

Thorax: The chest is large and barrel-shaped. Respiratory excursions are somewhat restricted. There is a prolonged expiratory sound, but no râles.

Heart: The area of dullness is diminished, and is covered by lung tissue. A loud systolic murmur is heard over the entire chest with its maximum intensity along left border of sternum.

Abdomen: Negative.

Left Inguinal Region: There is a large oblique inguinal hernia which is easily reducible. A distinct impulse is imparted. There are very large external and internal rings.

Extremities: In the left lower extremity there are evidences of a previous osteomyelitis of femur. There are a number of cicatrices on thigh. The knee and ankle are both ankylosed, and there are a number of scars around the ankle. Reflexes are sluggish.

Glandular system negative.

*Operation.*—A long incision was made over the tumor mass, on the left side of the head, from the mastoid process toward the parietal eminence. As the incision was continued in depth the entire mass collapsed, the contained air escaping. Underneath the scalp and springing from the bony vault were numerous exostoses, giving a honey-combed appearance to the cavity. These exostoses were chiseled away and removed. At the mastoid process an excavation was found with a fistulous tract which, on being probed, could be distinctly felt to lead through to the external auditory canal. Considerable hemorrhage was encountered, one vessel deep in the bone requiring tamponing to arrest its bleeding. A counter opening was made in the scalp toward the right side. A large strip of iodoform gauze was packed through this opening and through into the first opening. The entire wound was left open and packed with iodoform gauze. A recurrent head bandage was applied. The patient was in good condition on being put to bed.

June 18, wound redressed; June 19, wound repacked; June 21, packing partially removed; June 23, remainder of packing removed; June 25, head redressed; June 27, head redressed; wound packed with iodoform gauze; Thiersch dressing applied; June 29, head redressed; discharge somewhat purulent; July 1, head redressed; July 3, head redressed; July 4, head redressed; July 6, head redressed; discharged.

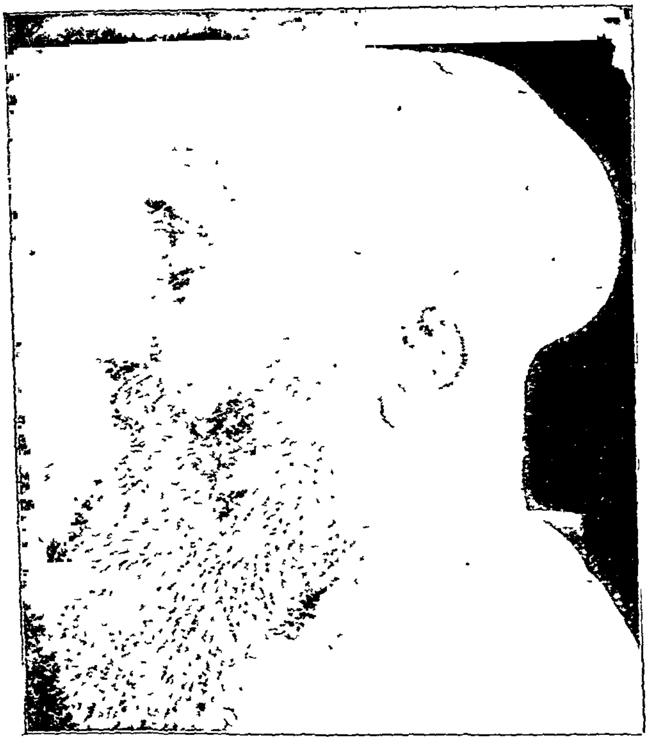

Fig 1.—Side view.

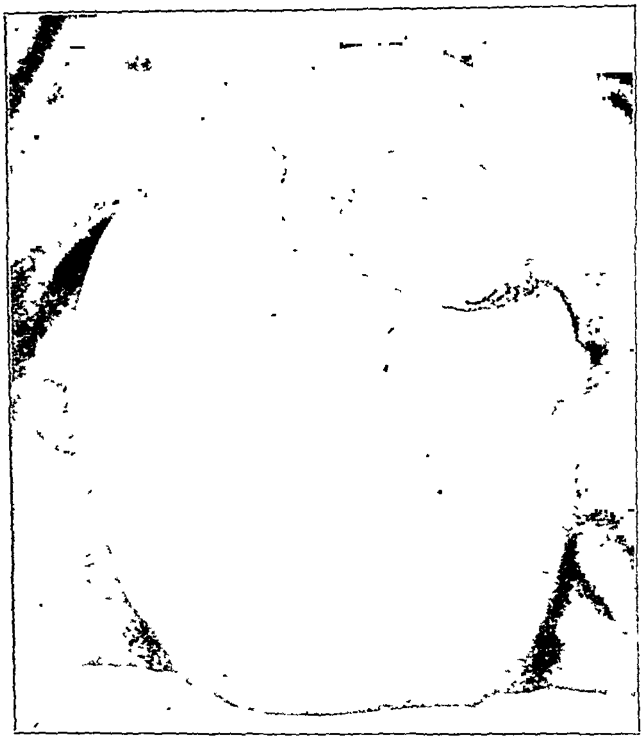

Fig 2.—View from above (forehead resting on table).

DEFINITION.

Pneumatocele may be defined as a gaseous tumor of the cranium, a term proposed by Chevance de Wassy as being the more proper surgical name with which to replace that of *"tumeur gazeuse"* or *"tumor flatulans,"* that had been used in the four previously recorded cases. The term should not be confused with the condition now described as emphysema of the scalp, from which it differs in being one air-containing sac, while emphysema consists of numerous finely divided bubbles of air in cellular tissue. Nor should it be confused with pneumocele, which applies only to hernia of lung.

These tumors have for their external wall the skin and periosteum and all tissue between. They have been observed almost invariably in two positions. First, over the mastoid region and occiput; second, over the frontal sinus and forehead. By some authors they are described as pneumatocele occipitalis and pneumatocele sincipitalis.

DIAGNOSIS.

For developmental reasons these tumors are never found in the first decennium of life.

They vary in size according to their age. They have been described from the size of a hazel nut to an enlargement sufficient to give the head a circumference of 2½ feet. Because of the varying degrees of attachment of the periosteum to the bone they assume irregular shapes, giving a grotesque appearance to the patient, as accompanying photograph will demonstrate. The irregularity is chiefly determined by the stronger attachment of the periosteum at the sutures.

When complications are absent, the tissues covering these tumors retain a normal appearance, neither reddened, edematous nor inflamed.

These tumors are not usually sensitive when palpated, and give a sense of extreme elasticity or of exaggerated fluctuation. They do not pulsate. On pressure, such as

TABLE OF CASES REPORTED TO JANUARY, 1905.

| Author. | Location of Tumor. | Sex and Age. | Special Senses Affected. Dizziness, Etc. | Origin. | | | Treatment. | Result. |
|---|---|---|---|---|---|---|---|---|
| | | | | Traumatic. | Inflammatory. | Spontaneous. | | |
| Lecat, 1741.... | Began below right ear, later covered two-thirds of skull. | ? | Hearing (?)... | ............... | ............... | Unknown. "Scrofulous t'mp'ram't." Cause unknown. | Large incision; caustics.. | Death after 133 days from sepsis. |
| Olof Acrel, 1777 | Over frontal to malar bone. | Boy. | "Heaviness in head." | ............... | ............... | After *lifting* heavy w'ght. | Pressure .................. | Recurrence on removal of *pressure*. |
| Lloyd, 1779.... | Junction of sagital and lambdoidal sutures. | F 35 | Dullness, stupor, vertigo. | Fell from horse eight years previously. | ............... | ............... | Incision; lint poultice. "Healed in 3 weeks." | Recurrence after 7 months, finally cured. |
| Pinet, 1833..... | Occipital; later like "*enormous* turban." | M 33 | ? | ............... | ............... | "No appreciable cause." | Successive punctures, incision and setons later | 5 months later still carrying seton. All but small area adherent. |
| Chevance de Wassy.1850-51 | Behind left ear. Extended later over vertex nearly to right ear. | M 33 | Hearing. "R'mbli'gs" in the ear. | Fall from tree "resulting in fracture of wall of tympanum" (?), ("Of 'Rocher' at level of ear drum.") | ............... | ............... | Punctured at first, later opened and seton inserted. Abundant suppuration. | Recurrence after 2 months, seton again and after short time complete cure. |
| Belassa, 1853.. | Right side of head. Later another over parietal bone. | M 16 | Hearing... ... | ............... | ............... | "Lymphatic constitution." | Incision, permanent gutta percha canula. Compression. | Erysipelas and abundant suppuration followed by cure after from fifteen to twenty weeks. |
| Voisin, 1858... | "Back of right ear." Became occipital and parietal. | M 57 | None mentioned. | ............... | ............... | "Painless development." | Incision and compression | *Suppuration* with final cure. |
| Costes, 1859... | Over right ear; occipital. | M 57 | None mentioned. | ............... | ............... | "Painless swelling." | Incised, lint wick, suppuration. | Cure. |
| Guthrie ....... | Frontal........... | ? | ? | "Frontal sinus wound." | ............... | ............... | Compression............. | Result not stated, probably negative. |
| Duverney ..... | *Frontal* "to middle of nose." | F | Smell ?........ | ............... | Inferior maxillary and nasal bone necrosis. | ............... | Incision.................. | *Cure after* 12 days. |
| Sante Foi ..... | Frontal, extended below orbit. | F 12 | Smell ?........ | ............... | Nasal inflammation. | ............... | Compression............. | Cure after 6 weeks. |
| Ribeiro, Viauna, 1862. | Occipital, began behind left ear. | M 20 | ............... | ............... | Slight auditory canal inflammation following "prick" some mos. before. | ............... | Cross *incision and* curette; cure for 3 mos., reappearance followed by compression. | Recurrence. |
| Warren, 1862.. | Frontal .......... | ? | ? Pain in side of head. | Blow on head by tree four years before. Irregular loose masses of bone. | ............... | ............... | Several operations, removal of bone fragments. | Not known. "Condition poor when last seen." "Brain symptoms at times." "Recovery after removal of last fragments." |
| Denonvilliers 1866. Rep'ted by Thomas. | Right occipital, over large area. | M 29 | "Bruit." Later some deafness in right ear. A previous attack of vertigo and unconsciousness. | Kicked in he'd by *horse* at 12 years of age; later head symptoms. | "Never had otitis." | ............... | *Trochar, compression....* | Small local swellings persisted, also occasional attacks of vertigo. |
| Fleury, 1867-68 | Occipital, *mastoid right*. | ? | "Bruit" vertigo. | "No history of trauma." | "No infection." | Evidently...... | Puncture, lint; became purulent. | Death, following edema of face and throat. |
| Jarjavay, 1869. | Right frontal, extended to border of occipital. | M 25 | Sight and smell affected; hearing intact; headaches and vertigo. | History of severe fall 7 years previously. | ............... | Headaches (frontal) from 9 years of age. | Punctures, incision and canula. Abscess and counter openings. | "Cure, but there remained a permanent fistula to frontal sinus." |
| Krabinski, 1869 | Frontal left....... | M 46 | Sight (from swelling). | ............... | ............... | Spontaneous at first; *recurrence* attended by nasal and frontal sinus inflam'ation. | Puncture drain and com*press*. Later a small "pelotte" was applied and fastened by rubber band. Later recurrence, sequestrum removed. Large compress. | Probably not a *cure.* |
| Schmidt, 1871. | Mastoid occipital. | M | Hearing ? .... | ............... | Typhus and otitis media; irrigations, etc. Politzer and Valsalva's procedures. | Says exact cause not known. | Pressure bandage........ | "*Cure after* 8 days." |
| Wernher, 1873. | Mastoido-occipital; "whole right half of hairy part of head." | M 20 | "Noises." Hearing somewhat impaired. | ............... | ............... | Evidently, though followed by violent sneezing | Iodin injections ........ | Cure. |
| Mazzoni, 1874. | Behind ear. Left occipito-parietal boundary | M | "Hearing intact." | ............... | ............... | Evidently..... | Drain and "cerat" plaster *pressed down on* skin. | Recurrence; probably *not* final cure. |
| Birnbacher, 1881. | *Frontal* (right). | M 17 | No interference with vision. | ............... | Frontal sinus disease | ............... | Puncture and drainage.. | No return for 2 years. |
| Brunschwig, 1883. | Above and behind ear, right side. | 15 | ............... | Swelling increased after a fall on head. | Also accentuated by "cold in head." | Spontaneous at first. | Repeated punctures and compression. | Cured. |

TABLE OF CASES REPORTED TO JANUARY, 1905—Continued.

| Author. | Location of Tumor. | Sex and Age. | Special Senses Affected. Dizziness, Etc. | Origin. | | | Treatment. | Result. |
|---|---|---|---|---|---|---|---|---|
| | | | | Traumatic. | Inflammatory. | Spontaneous. | | |
| Turner, 1888... | Over right mastoid process. | F 20 | Audition negative. | Fell from sofa and struck right side of head 2 years before. | .............. | .............. | Incision, irrigation with 4 per cent. carbolic acid solution. Tampon of iodoform gauze; compression. Drain removed 5th day. | Complete cure after 13 days. |
| Sonnenburg, 1889. | Behind right ear. "More over parietal bone." | F 12 | Evidentlynone | .............. | .............. | No cause known. | Long incision and tampon. | Cure after some weeks. |
| Von Helly, 1890 | Left side over frontal bone. | M 28 | Headaches.... | Blow over right eye 7 years before, followed by loss of vision. | Nasal discharge 3 years before; later ozena and erysipelas. | .............. | Left hospital when erysipelas disappeared. | "Appeared to be a complete cure." |
| Kramer, 1896.. | Occipital. "Opening more than centimeter back of mastoid." | M 28 | "Hearing normal." | Blow in back of head four weeks before | .............. | .............. | Incision, compression; recurrence. Iodin and gauze, recurrence; plastic with flap. | No recurrence for 6½ months. |
| LeDentu, 1896 | Frontal.......... | | .............. | Fracture of skull by fall 20 days before. | .............. | .............. | Incision, some pus trephined. | Not known. |
| Lannois, 1897 | Mastoid. "Swelling back of ear." | 31 | ? | .............. | Suppuration in ear for sev'ral yrs. | .............. | Tumor became inflamed.. | Unknown. |
| Nove, Josserand and Carle, 1897-98. | Mastoid both sides, right the larger. | M 31 | "Very nervous." Vertigo marked; slight deafness. | .............. | "No evidence of mastoiditis." | Neuralgic pains about ears at 11 years; no discharge. | Incision was followed by air bubbles and small amount of pus. Antiseptic dressing. | "Radical cure." "Case of inflamed pneumatocele." |
| Malapert, 1900 ('85). | Right mastoid.... | M 44 | Hearing impaired. | .............. | Purulent discharge from auditory canal sometime before. | .............. | Considered an abscess and lanced. | Not known. |
| Martel, 1901... | Occipital. Began as two umors, one in temporal region. | M 26 | Impaired audition, headaches and vertigo. | .............. | .............. | Evidently .... | Punctured at first, recurred later; drainage by seton with counter drain, compression, large opening later; external plate removed and mastoid process uncovered, iodoform gauze and tube for drainage. "Minerva" later applied. | "Left hospital on road to recovery." |
| Strom, 1902.... | Left temporal and parietal. | M 19 | Hearing somewhat impaired. | .............. | "Catarrh in nose for years." | .............. | Bow-shaped incision; curette and chisel, removed outer lamella of mastoid process, drainage. | Cure. (No return in 2 years.) |
| McArthur, 1904 | Left occipital and parietal. | M 63 | Impaired hearing. | .............. | .............. | Spontaneous.. | A former puncture with recurrence. Incision, chisel and curette, wound left open and packed with iodoform gauze. | Cure. No recurrence in 2 years, still has impaired hearing. |

Total: 33 cases. Location: 23 occipital; 10 frontal. Sex: Male, 22; female, 6; unknown, 5. Age: 12 to 66 years. Traumatic history, 10; inflammatory history, 10 (3 traumatic also). Spontaneous, 16. Result: Cure, 17; recurrence, 6; doubtful, 8; death, 2.

might be used to reduce a meningocele or to collapse an angioma or varix, the tumor mass often will diminish in size. The patient frequently hears a sound as of rushing air or water in the ear when the tumor is occipital, and in the nose or throat when frontal. When tense, the tumor gives such a sense of fluctuation that the surgeon frequently thinks that he has to deal with a fluid collection. This idea is opposed by the finding of a bony outgrowth or ridge at the line of juncture of tumor with the normal scalp, for if the tumor has existed for some time there will be found a distinct bony elevation rising from the normal cranial wall on to the surface of the tumor to the distance of from one-fourth to one-half inch. The margin of this ridge which joins the elevation is serrated, sharp and irregular. In those cases in which the size of the tumor can be reduced by pressure one can also feel through its coverings numerous bony irregularities, elevations and depressions over its entire base. Efforts on the part of the patient to inflate the middle ear, or the use of the Politzer bag, will usually restore the size of the tumor. It is sometimes possible after the temporary reduction by pressure of one of these tumors to feel the opening into the sinus of the mastoid process. They are dependent for their occurrence on connection with air-containing sinuses.

Auscultation is negative. Percussion offers the most important diagnostic sign, for one obtains thereby a highly exaggerated tympanitic note. In this location, however, percussion is the procedure in the examination least likely to be made, for one expects to obtain no other than a flat note and therefore omits the test.

## PATHOLOGIC ANATOMY.

Pneumatoceles, then, being tumors produced by air dissection of the periosteum from the bone, will have for one-half their lining periosteum, for the other half bony wall. This periosteum, being normal, retains its natural ability to produce bone. Hence, at the junction of the periosteum with the calvarium a bony ridge forms. This ridge marks the outlines of all long-standing pneumatoceles. From varying points of the thus elevated periosteum strands of tissue still connected with the bone remain. Along these strands osteophytes may form which, if the tumor be opened, will appear like stalactites and stalagmites, and in this way are produced those irregularities that can be felt when the tumor has been collapsed by pressure.

The air entering into the formation of these tumors, just as in the analogous condition of emphysema, is usually sterile and therefore remains as a simple nonirritant.

Chevance de Wassy and others took pains to have careful analyses made of the contained gases and found them to consist of nitrogen 87 per cent., oxygen 10 per cent. and carbonic acid gas 2 per cent. The proportion of oxygen, being small, led him to believe that the gaseous mixture was not air.

We now know, experimentally, that if air be injected into one of the body cavities its oxygen will be readily absorbed, while the nitrogen remains for a long time. It is probable that air so injected, by a process similar to the exchange of gases in the lung, would gain in carbonic acid gas what it lost in oxygen. This the investigations of LeComte have experimentally demonstrated.

### ETIOLOGY.

In the few exhaustive memoirs on this subject, the writers have considered the various modes of formation of these tumors. The more logical deductions have pointed to a destruction of the bony walls, traumatic, inflammatory or spontaneous, and have rather dismissed s untenable both the congenital defect idea and that f an escape of air through vessel foramina. Theoretically, it is conceivable that the bony wall of either the frontal sinus or of the mastoid cells could be of such parchment-like thinness congenitally as to give way under unusual pressure from within or without. We do know that in later adult life the walls of these cavities atrophy or become so thin that this could occur, and possibly some of the pneumatoceles described as spontaneous may have had such an origin. The suggestion by Helly that it would be possible for gas to escape from either frontal or mastoid cells through vascular bony foramina seems unlikely, for, during the existence of the blood vessels, these foramina would be filled by them, and in processes which resulted in vessel obliteration there would be left behind the obliterated structures to occlude the foramina. It sometimes happens that the squamous mastoid fissure in the process of development fails to unite, and in such a way one case is believed to have been caused. In one case (Kramer) the pneumatocele was found over the occipital prominence. At the operation, after careful search, the air was found to have followed along the bony suture to that point from the mastoid process.

While the real causes in a few cases are obscure, in the great majority of cases we have one of two etiologic factors that can be elicited by the clinical history: 1, trauma; 2, sudden increased pressure within the buccal and oral cavities. The trauma in 10 cases has been by direct violence; in 10 cases by the changes which inflammatory processes within these bony cavities could easily induce—that is, the outer bony shell can be easily fractured without tearing the periosteum, or can be readily absorbed by inflammatory processes, can become carious, or can disappear by direct pressure from granulation tissue or new growth, leaving the periosteum intact. When to such a condition we have the added factor of a sudden decided increase in the air pressure within the mastoid or frontal sinus, this intact periosteum may be elevated and dissected loose by the burrowing influences of the escaping air and finally there may result the formation of a tumor of varying size and form, the contents of which is simply air.

Instances [illegible] lated in which sudden violent efforts [illegible] of a baker lifting a barrel of [illegible] ggling with a vicious horse, have [illegible] ssure necessary to make the bony [illegible] lready missing. to elevate the [illegible] 16 (about 50 [illegible] t.) of the cases collected have occurred spontaneously so far as history of injury or of inflammatory conditions go.

During the growth of the tumor the patient not infrequently will hear—on efforts at sneezing or blowing the nose or inflating the ear after Valsalva's method—the escape of air into the tissues back of the ear, with a corresponding increase in the size and tension of the tumor. He will sometimes call attention, too, to the possibility of reducing this by a reverse process of pressure on its surface. It is easily conceivable why many of them can not be so reduced, for the periosteum lying over the mastoid or frontal sinus may remain so nicely in apposition with the opening through which the air escapes that it will act like the valve of a bellows or Davidson's syringe—rising readily to permit ingress of air to the tumor cavity, but falling flatly against the orifice to prevent its exit.

The partially collapsed tumor can be artificially filled with air by use of the Eustachian catheter and the patient himself may accomplish the same result by attempting to blow hard when his nose and mouth are closed.

### TREATMENT.

Since the majority of these tumors were observed in the pre-antiseptic era, it is easily understood how considerable differences of opinion arose as to the best methods of handling a growth perfectly benign in itself, but capable of very disastrous results if not protected against infection. The following procedures have been carried out at different times: 1, compression; 2, puncture; 3, opening and packing; 4, osteoplastic resection. Since, in a fair proportion of the cases observed, it was possible to reduce the size of the tumor by compression, varying methods of this were tried. There was temporary success in some cases, but frequent recurrences. The usual method was to pad the tumor well and then, by means of bandages of muslin or caoutchouc, to maintain continuous direct pressure. After some weeks of this treatment, in a few cases, it was found possible almost to obliterate the tumor but the distress was so great to the patient and the recurrences so frequent that other means of treatment were sought. Aspiration through a hollow needle was made and this was followed by compression. The results tallied nearly with those of compression alone, unless infection followed, as was to be expected in pre-antiseptic days.

During the period that puncture was popular, many of the observers noted that their needles, after passing through the tumor coverings, came in direct contact with denuded bone. Gaining thus the idea of a caries or necrosis existing, they proceeded at once to treat the imagined bone disease after the methods then employed. Laying open the sac, air would escape and the peculiar elevations described as resembling stalactites and stalagmites would be scraped away or chiseled off and the wound packed with charpie or lint. This was promptly followed by an abundant suppuration, violent infection and sometimes death. As said before, we now recognize these bony irregularities as simple osteophytes and exostoses due to the displaced bone-forming elements of the periosteum. One author (Wehrner) demonstrated the possibility of cure in his case by the injection of tincture of iodin. Beginning at a point distal to the mastoid, he practiced an injection of a few minims of iodin and applied compression. This resulted in a partial obliteration of the walls at that point. Following this by a series of injections extending over a period of two months, he succeeded ultimately in causing aseptic adhesions between the tumor walls, having allowed, prior to the injection, the escape of air through his needle or back through the channels through which it came.

We understand now why the third method of treatment—that of boldly laying open the gaseous cavity—became so disastrous a procedure, for we know the dangers of a suppurative process which has extended to the mastoid cells. Since the era of antiseptic surgery, these dangers have been so nearly dispelled as to render the general opening of these cavities a safe procedure and, in nearly every instance, a perfect cure is effected if pains be taken to so dispose the incision as to make the point of final healing immediately opposite the bony perforation through which the air entered the tumor. In my case it was easily possible to find the openings in the mastoid process, to enlarge them, and, having removed the major portions of the osteophytes and bony ridges, to bring the walls of the gas-containing cavity in contact, and by simple compression to secure their adhesion to those surfaces from which they had been torn.

Some writers (Sonnenberg, etc.), after opening widely such cavities, have been unable to demonstrate the existence of any perceptible opening in the mastoid process—even though they allowed the patient to come out of his anesthesia and made either inflation of the Eustachian tube or had the patient repeat the process by which he formerly had been able to drive air into the tumor. The failure of the patient's efforts to force air through these openings may be rationally explained. By the time he was sufficiently awakened to make the effort the openings were probably plugged with clotted blood.

For the convenience of future investigators of this subject and of those desiring to consult the original literature, I have appended a table giving a synopsis of the salient features of each reported case from which, by easy deductions, the percentage mortality, the prevailing treatments, the more frequent location and what associated special senses were disturbed can easily be ascertained. A list of the literature consulted is likewise appended.

Costes of Bordeaux, reporting the fifth recorded case and making an exhaustive study of the four preceding cases, prepared so excellent a memoir on this subject that in all details except treatment he has covered the ground completely and the conclusions which he arrived at in 1859 still hold absolutely true for the present time. They are as follows:

1. Pneumatoceles are very rare.
2. They always depend on perforations of the bony walls.
3. They are always tympanitic.
4. They are more or less reducible by pressure.
5. They can take their origin from the mastoid or frontal sinuses only.
6. They are of very slow and indolent formation.
7. They are never dangerous except from complications (infections).

In conclusion, I desire to acknowledge the very able assistance rendered me by Dr. J. C. Hollister in reviewing the literature of the subject and in collecting the data.

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# THE PROTECTION OF THE ROENTGEN RAY OPERATOR.

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The serious nature of the injuries which have been inflicted on two expert Roentgen ray operators, and which necessitated the amputation or partial amputation of both hands, should be sufficient warning to all engaged in the the employment of this powerful agent. A further word of caution seems necessary, however, as many operators who have had no experience are entering the field.

The claim made by the manufacturers of static machines that these do not, or are less liable to, produce serious injury has proved fallacious. It is a dangerous doctrine, as it engenders a false sense of security. One of the physicians, who has practically lost both his hands, did most of his work with a static machine.

The Roentgen ray is itself the effective agent or the transmitter of that agent to the tissues. The injury or the good results only where it is applied. The same caution must be observed by the operator in handling the Roentgen rays, no matter what their source.

The more powerful the source of energy the greater will be the danger, but that danger exists wherever effective Roentgen rays are present. The danger is the greater because the injury is produced insidiously and does not make itself manifest for two or three years after the operator commences his work.

The injury is done slowly and insidiously. There is a gradual accumulation of injurious effects, and when the lesion manifests itself it is in a chronic form, with the formation of slow, indolent ulcers and horny, corn-like growths on the dorsal aspect of the fingers, and a cracking and brittleness of the nails. There is at times intense itching and acute pain. The slow, tedious process of trophic change will go on and the lesions will grow worse as long as the cumulative or latent effect is present. Recovery is always tedious, if it ever takes place, while a true malignant growth may become engrafted on the devitalized and irritated tissues.

The unconsciousness of danger makes it the greater. Because the injury manifests itself slowly the victim feels secure, and before he realizes it a chronic trophic lesion has been produced. Since the injury manifests itself slowly, its full extent can only be determined by time. Complete relief or protection from further injury does not stop its course nor lessen the injury already produced.

These factors make the warning more imperative, and the need for care and for the employment of every precaution greater. Text-books on this subject do not give the protection of the operator enough attention, nor do they warn the student of the dangers he must avoid or tell him how to avoid them. In a recent standard work on the Roentgen ray, the author advises his readers to test the quality of the rays they are employing by observing their hands on the fluorescent screen. More dangerous advice could not be given to the student. The operator's dermatitis is due, in a majority of cases, to this practice, which was generally employed before its dangers were known. On the other hand, this method of determination is both crude and inaccurate.

The acute dermatitis produced on the patient does not possess the elements of danger found in the operator's chronic trophic lesion. There is practically no danger to the patient who is exposed a few times for diagnostic or for therapeutic purposes.

The lesion does not develop in the operator for two or three years, and then only after constant exposure. Day after day he is subjected to almost constant doses of the most potent alterative and stimulant agent of cell metabolism that has ever been introduced into therapy. The autolytic action of the cells is stimulated constantly, karyokinetic changes, metaplasia and hyperplasia follow, and, under continued stimulation of their autolytic action, the production in the cells of malignant growths may follow; though I do not believe that they must necessarily follow. The hyperplasias are no more malignant in their nature than overgrowths of epithelium in any other portion of the body. These may be either benign or malignant, and those produced by exposure to the Roentgen rays likewise may prove to be benign or malignant. This, in a measure, may depend on the amount of alterative, irritant or stimulant that has been applied in producing the lesion.

The production of malignant disease in the hands of operators by this agent leads to the conclusion that malignant disease can be produced *by the overstimulation or protracted irritation of normal tissue cells* by this agent.

Beneficial results in the therapeutic application of these rays can only be secured after diligent and patient observation by the student. The essential technic for accurate radiography or for effective radiotherapy is the result of long and careful study and clinical experience. The operator must be constantly near the tube and must be carefully observant of its action, for he must know all its moods and whims if he would use it effectively. He can not do this with safety to himself unless he realizes fully the dangers that must be avoided. He must observe the utmost caution and must never enter the irradiated field with any part of his body.

It is practically impossible for the operator to protect himself by wearing impervious clothing or shields. Various cloths impregnated with opaque metallic salts have been devised, but they are necessarily so clumsy as to preclude freedom of movement and deftness of manipulation.

The most practical method is to limit the irradiated field by covering the Roentgen tube. The field of its action can thus be confined to the part of the patient to be examined or to be subjected to treatment. Many shields with varying diaphragms have been devised to protect the patient, but they leave the operator unprotected and constantly exposed to the rays.

The placing of the tube in an opaque box has been suggested by many authors, and, among the first, by Williams of Boston. I have used the following simple device for over two years and it has proved very satisfactory; its chief merits are efficiency, simplicity and cheapness; it can be made by any operator and used with any tube:

A pasteboard box three-eighths or one-half inch wider than the diameter of the tube is cut at the ends to admit the tube. There is a round opening through which the prolongation of the cathode end can extend and another at the anode end, which can be reached by a cut through the intervening pasteboard. The box is suspended from the ends of the tube and surrounds only the bulb. It can be held in place by rubber bands or cord.

This box is covered with *x*-ray foil, a heavier lead foil than the ordinary tea lead.

It is only necessary to cover the irradiated portion of the box, i. e., the luminous hemisphere of the tube. The lead surrounds the box and extends two inches below the bottom in flexible curtains, that can be so adjusted that the irradiated field can be limited to any extent. It is not necessary to cover the anode end or that portion of the sides behind the plane of the anode. At the cathode end, the lead must be cut away, one and one-half inches from the cathode prolongation, where it passes through the box. Where the lead hangs below the bottom of the box it is cut at the corners and thus forms three flexible curtains. The bottom of the box is removed so that in adjusting it the operator, by looking over the anode, can limit the irradiated field to any desired area by bending the lead curtains in or out.

During all treatments, the patient lies in comfort on a couch, while the tube is held, on a bracket, over the portion of the body to be treated. The lead shield cuts off the rays from all but the field of operation. Where a small area is to be treated, all but this area may be covered by a small contact shield while the remaining rays are cut off by the box. It is generally better to treat a considerable area surrounding the actual lesion, and it is seldom necessary to use any protection other than the lead-covered box. This always protects the operator.

The chief value of the box shield to the operator is that it protects him as well as his patient. It is simple, readily adjusted, efficient and always interposed between the operator and the source of Roentgen rays and of injury.

If the fluoroscope must be used the operator should

losis of the .own hand on it for the purpose of esti-
characterizeca.ity and intensity of the light; there
sis, these lesrate methods and instruments of pre-
I believe thaing these measurements without risk to
I have ma( every instance the screen of the fluoro-
sils of nine pacvered with a sheet of one-fourth inch
culosis of the es not afford absolute protection, how-
were so much in :ill penetrate it.
was readily made stand behind a thick lead screen,
six cases tubercles and .an opening corresponding to
tions of the tonsils were examined fluoroscopic ex-
scope. In one case numerous sectio:angerous to the
before a tuberculous nodule could be ient's body af-
tonsil had practically disappeared, b is certain to
only by invaginations of intact squa on is not used.
and a thin layer of lymphoid cells. S(the serious re-
ably not far wrong when he says that due to the ac-
ary phthisis tuberculosis of the ton;obably other con-
co-existent. repeated introduc-
The important element in the induction fields sur-
the tonsils is the presence of ered. Any contribut-
sputum or other secretion whose action is unknown,
face of the tonsil. That thssible. It is safer, there-
an ascending tuberculosis coil in an adjoining room,
is practically impossib ires through porcelain tubes
, Schlenker, Washam, Sg apparatus in the operating
r mann and perhaps only necessary in large hospital
lat of the lungs, t more than one coil is in use, and
whe kes place patients are being treated.

Sin illi I have employed these methods of protection I have noted marked improvement in, and practically a cure of, a severe dermatitis that had been so intense as to cause loss of sleep from the pain.

If Roentgen operators would avoid serious injury, such as has proved fatal in one case, and has caused two experienced operators to lose their hands, they must observe the utmost caution in subjecting themselves to radiations from a Roentgen tube. An operator should never place his hand in the irradiated field and should never employ it on the fluoroscope to test the light. He should always employ an opaque shield surrounding the tube and should keep his hands out of high potential induction fields.

I have been variously and often erroneously quoted in reference to the treatment of Roentgen ray burns. The following is the treatment which I employ and which I have found the most efficient in treating my own dermatitis:

The hands should be washed and soaked in water as hot as can be borne. It will be found that they gradually accustom themselves to very high temperatures, and that the temperature of the water can be gradually increased. The hands should be scrubbed with a sterilized brush, using Eichhoff's superfatted resorcin soap. This will be found very soothing. After thorough washing, the hands should be well rubbed in an ointment of lanolin containing one-half ounce of boracic acid and one dram of resorcin to the ounce. This should be done both morning and night and the hands should always be washed in hot water with the superfatted soap. Simple superfatted soap or soap and lanolin can be used if the resorcin is too severe, with the substitution of benzoic acid in the ointment.

The thickened epidermis and horny growths, with the indurated edges of the indolent ulcers, can be softened by covering them with ointment under oiled silk. The softened epidermis then should be gently removed. The ointment should be renewed after each washing. Small healing ulcers that have become healthy can be covered with surgeon's isinglass plaster, after the hands have been washed and anointed; these ulcers often take from four to six months to heal and may cause intense pain.

In treating the acute erythema resulting from Roentgen ray treatment, I have employed the stearate of zinc composition with 10 per cent. ichthyol. It is very efficient, subdues the inflammation and itching, and helps to produce the tanning which is so essential before deep treatment can be efficiently employed. The powder should not be confused with the stearate of zinc ointment, as any ointment will soften the skin and render it more liable to break down and to slough. The substitution of the ointment for the stearate powder resulted, in one case, in the formation of a large ulcer. The entire epidermis adhered to the ointment and came away with it.

Where an open ulcer has formed, strict antisepsis should be maintained, and irritants should be carefully avoided. Sterile water is an irritant, while normal salt solution and boric acid solution are not. After cleansing, the resorcin ointment should be applied to relieve the pain and to promote healing. The employment of the stearate of zinc composition powder with 10 per cent. ichthyol seems to act as a prophylactic and prevents the production of serious burns during severe Roentgen ray treatment.

112 South Twentieth Street.

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# THE SIGNIFICANCE OF TUBERCULOUS DEPOSITS IN THE TONSILS.[*]

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PHILADELPHIA.

The object of the research which is outlined in this paper has been to determine, as nearly as possible, the relative importance of the tonsillar tissues of the throat as portals of entrance for a general tuberculous infection. To arrive at a definite conclusion, it seemed necessary to ascertain the truth concerning certain fundamental questions.

First. Are tuberculous lesions produced more easily in the tonsils than in other portions of the gastrointestinal tract?

Second. Does tuberculous adenitis of the neck have its starting point in the tonsils?

Third. What is the importance of tuberculous cervical adenitis as an etiologic factor in systemic or pulmonic infection?

From clinical data collected from literature, and from postmortem examinations which I have made, it is evident that in cases of pulmonic phthisis secondary tuberculous infection takes place more readily in the tonsils than in any other part of the upper respiratory tract.

Seifert[1] has shown that infected sputum plays a most important rôle in the infection of the tonsils, the bacilli finding the crypts of these organs a suitable place for lodgment. It has been proven by Goodale[2] that minute foreign bodies, such as carmin dust, are rapidly absorbed by the tonsils from their crypts, and that these particles pass to and through the interfollicular tissues. This has been confirmed by Hendelsohn[3] and Kayser.[4]

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[*] Read in the Section on Laryngology and Otology of the American Medical Association, at the Fifty-fifth Annual Session, June, 1904.

1. Handbuch der Laryn. u. Rhin., P. Heymann, vol. ii, p. 714.

2. Absorption of Foreign Bodies by the Human Faucial Tonsil, Especially in Regard to the Origin of Infection Processes, Arch. f. Laryn. u. Rhin., 1897, vol. vii, p. 90.

Piera,[5] however, went further, and demonstrated that micro-organisms were likewise absorbed through the epithelium, though if they were not capable of resisting the vital action of the tissues, they were destroyed practically as soon as they entered the tonsillar parenchyma. Virulent germs, however, could not only cause local disease, but could be carried to the neighboring lymphatics and thence to almost any part of the body.

Lexer[6] confirmed these results of Piera by a large series of experiments on rabbits.

### STATISTICS OF SECONDARY INVOLVEMENT OF THE TONSILS.

The following statistics concern the frequency of secondary involvement of the tonsils in cases of pulmonary tuberculosis. In phthisis a large number of tubercle bacilli pass over the surface of the throat and tonsils, and this condition affords a very good test as to the relative absorbing power of the tonsils and the rest of the pharyngeal mucous membrane.

Schlenker,[7] in a rather elaborate and extensive article, reviewed carefully 22 cases of tuberculosis of the lungs. He found the tonsils diseased in 15. In 13 of the 22 cases involvement of the lungs was extensive, and the tonsil was diseased twelve times. In 9 cases of slight involvement of the lungs in only 3 was tonsillar tuberculosis present.

Schlesinger,[8] in 13 cases of galloping consumption, found tuberculosis of the tonsils twelve times; but in 4 cases of chronic involvement of the lungs, he failed to find any tuberculous changes in the tonsils. He concludes that tuberculosis of the tonsils is a sign of virulent infection of the lungs, and is, therefore, of very serious import. In healed lung lesions or in any circumscribed tuberculous disease the tonsillar involvement was absent.

Walsham[9] examined after death the tonsils of 34 tuberculous patients. Only two of these patients had shown any symptoms of tuberculosis of the tonsils during life, and yet in 20 cases the tonsils were found to be more or less diseased.

Ito,[10] in 6 cases of pulmonary tuberculosis in children, found tonsillar involvement three times, and in 7 cases of miliary tuberculosis the tonsils were involved three times. His statistics cover some 104 autopsies, but in only 10 of the autopsies was the pharyngeal tonsil examined histologically, and, therefore, I can not accept all of his statistics. They are valuable in a positive sense, in that we must believe that he found at least 6 cases of tonsillar tuberculosis.

Dmochowsky[11] examined the tonsils of 15 phthisical
patients, 5 of whom had involvement o
in all 15 cases tuberculosis of the tonsi
ognized through the microscope, altho
could be noted with the naked eye. H
bercle bacilli penetrating between the
the crypts, especially in those places
apparent gaps.

Kruckmann,[12] in 64 autopsies,
culous condition in the body, in
there were 12 cases of tonsillar
remaining 13, 5
or no lesion of t
be excluded so
is concerned,
20 cases of t
tonsillar tuber
cases of tuberc
no tonsillar invo
either very small

Strassmann[13] exa
some portion of the
monary tuberculosis, a
involved thirteen times.
tonsillar tuberculosis.

Ozeki[14] reports 9 cases
culosis.

Gourc[15] has made a general s
bacteriologic examination being carri
He states that although he examined 17
tuberculosis, and 18 cases in which the con
supposed to be hereditary, in no case did he find tu
bercle bacillus.

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othing or shields.
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cessarily so clumsy
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g the Roentgen tube. The field of its
s be confined to the part of the patient
d or to be subjected to treatment. Many
arying diaphragms have been devised to
tient, but they leave the operator unpro-
stantly exposed to the rays.
f the tube in an opaque box has been
y authors, and, among the first, by
I have used the following simple
ears and it has proved very satis-
its are efficiency, simplicity and
ade by any operator and used
-eighths or one-half inch
he tube is cut at the ends
round opening through
de end can extend
n be reached
The box

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Cornil[16] examined the tonsils of 70 cases of phthisis, finding tuberculosis only four times. The results of these last two observers seem so contrary to all other evidence that I fear that their technic must have been faulty.

A summary of the foregoing statistics, excepting those of Gourc and Cornil, gives us the following table:

| Name. | Pulmonary tuberculosis. | Tonsils involved. |
|---|---|---|
| Schlenker | 22 | 15 |
| Schlesinger | 17 | 13 |
| Walsham | 34 | 20 |
| Ito | 13 | 6 |
| Dmochowsky | 15 | 15 |
| Kruckmann | 20 | 12 |
| Strassmann | 15 | 13 |
| | 136 | 94 |

These statistics show that in at least 69 per cent. of cases of pulmonary tuberculosis the tonsils are tuberculous. The majority of the pathologic diagnoses made by the foregoing observers were based on histologic findings. Lately it has been shown that a positive diagnosis of tuberculosis can not be made by the character of the histologic changes. Occasionally giant cells and lesions resembling tubercles result from the irritation of foreign bodies, and it has been definitely demonstrated that certain acid fast bacilli will sometimes give rise to changes scarcely distinguishable from true tubercles. It must, however, be admitted that these lesions caused by foreign bodies and by acid fast bacilli are exceedingly rare, and especially so in the human being. If, in a patient suffering from active tubercu-

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3. Absorption by Tonsils, Arch. f. Laryn. u. Rhin., 1898, No. 8, p. 476.
4. Absorption by Tonsils, Therap. Woch., v. Schnirer, Oct. 17, 1897.
5. Die Drusen des Waldeyer'schen Schlundringes, special die Gaumentonsillen betrachtet als Eingangspforte für Micro-organism, Arch. Ital. di Laringol., April 1, 1900.
The Mucous Membrane of the Throat as a Port of Entrance
6. The Mucous Membrane of the Throat as a Port of Entrance Arch. f. klin. Chir., 1897, vol. liv, p. 736.
for Pyogenic Infection, Untersuchungen über die Tuberculose der Halsdrüsen, be-
7. Untersuchungen über ihre Beziehungen zur Tuberculose der Tonsillen,
sonders über ihre Beziehungen zur Tuberculose der Tonsillen, u. Virchow's Arch., 1893, vol. cxxxiv.
Inaug. Diss. Zurich, 1893, u. Virchow's Arch., 1893, vol. cxxxiv.
8. Die Tuberculose der Tonsillen bei kindern, Berlin. Klinik,
1896, vol. xcix.
9. Latent Tuberculosis of the Tonsil, British Medical Journal,
May 7, 1898; Lancet, June 18, 1898.
10. Untersuchungen über die im Rachen befindlichen Eingangs-
pforten der Tuberculose, Berlin. klin. Woch., 1903, vol. xl, p. 27.
11. Ueber sekundäre Erkrankung der Mandeln und der Balg-
drüsen on der Zungenwurzel bei Schwindsüchtigen, Ziegler's Beitr.
zur pathol. Anat., vol. x, p. 481.

12. Ueber die Beziehungen der Tuberkulose der Halslymphdrüsen zu der Tonsillen, Virchow's Archiv, vol. cxxxviii, p. 3.
13. Ueber Tuberkulose der Tonsillen. Virchow's Archiv, 1884, vol. xcvi, p. 319.
14. Die Tuberkulose der Tonsilla palatina, Diss., Würzburg, 1899.
15. Die W. Meyer'sche Mandel, ein Beiträg zur Bacteriologie der Adenoidgeschwillste. These de Paris, 1897.
16. Sur la tuberculose larvee de trois amygdales, Semaine Médicale, 1895, p. 223.

losis of the lungs, lesions should be found which are characterized by epithelioid cells, giant cells and necrosis, these lesions must be looked on as tuberculous, and I believe that the above statistics are practically correct.

I have made postmortem examinations of the tonsils of nine patients, in whom death was due to tuberculosis of the lungs, and in three of these the tonsils were so much involved that a diagnosis of tuberculosis was readily made macroscopically. In the remaining six cases tubercles and giant cells were found when sections of the tonsils were examined under the microscope. In one case numerous sections had to be made before a tuberculous nodule could be detected, but this tonsil had practically disappeared, being represented only by invaginations of intact squamous epithelium and a thin layer of lymphoid cells. Schlesinger is probably not far wrong when he says that in active pulmonary phthisis tuberculosis of the tonsils is almost always co-existent.

The important element in the secondary infection of the tonsils is the presence of tubercle bacilli in the sputum or other secretion which passes over the surface of the tonsil. That the tonsils can be infected by an ascending tuberculosis of the cervical lymph glands is practically impossible. It has been shown by Schlenker, Washam, Schlesinger, Kruckmann, Strassmann and perhaps others, that in obsolete involvement of the lungs, tuberculous infection of the tonsils rarely takes place. This is due to the absence of the tubercle bacilli from the sputum.

Secondary pharyngeal tuberculosis occurs in a very few number of cases by infection from the tuberculous sputum. Laryngeal tuberculosis is more common, but both of these conditions are rare as compared with the frequency with which the tonsils become diseased. To infect a tonsil it only requires that a sufficient number of tubercle bacilli be brought in contact with its surface.

### PRIMARY INVOLVEMENT OF THE TONSILS.

We now come to consider the subject of primary tuberculosis of the tonsils. It is a most difficult question to decide, even at autopsy, whether a lesion in any given organ is primary or not, and it is impossible to say positively from a clinical examination that any given tuberculous lesion is the only one in the body or that it is the primary seat of the disease.

The evidence which I intend now to bring forward to show that primary tuberculosis of the tonsils occurs much more frequently than is generally supposed, is conclusive simply because of the enormous quantity of data. Any part of the evidence taken individually is perhaps in itself not unassailable, but I insist that, considered as a whole, it affords positive proof of the occurrence of primary lesions in the tonsils in a certain proportion of children.

Brown[17] reported a case of a woman with a tubercular ulceration on the left tonsil. This healed up under applications of lactic acid without any involvement of other organs.

Pilliet[18] found histologic evidence of primary tuberculosis of the pharyngeal tonsil in 3 out of 10 cases.

Tusseau[19] has observed 3 cases of primary tuberculosis of the tonsils. He believes that it was possible for infection to take place from the food.

Broca[20] examined 100 cases of adenoid vegetations histologically, but in none did he find tuberculosis.

Dieulafoy[21] found 8 cases of primary tuberculosis of the pharyngeal tonsil among 61 adenoids examined. He proved the presence of the condition by inoculation tests in guinea-pigs.

Brindel[22] reports a case of undoubted primary tuberculosis in a child 8½ years old.

Pluder and Fischer[23] found two cases of primary tuberculosis of the pharyngeal tonsil out of 32 examined.

Ruge[24] made very careful examinations of the tonsils of 18 patients, and six times found undoubted tuberculosis.

Lermoyez and Macaigne[25] reported a case of tuberculosis of the tonsil characterized by tubercles with giant cells and a few Koch's bacilli.

McBride and Turner[26] examined 100 cases of enlarged pharyngeal tonsil and in 3 per cent. found distinct histologic evidences of tuberculosis.

Dempel[27] examined 15 pharyngeal tonsils from otherwise healthy individuals and found tuberculosis once.

Ozcki[28] reports two cases of primary tuberculosis of the tonsils.

Piffl[29] in 100 cases of adenoid vegetations which he examined microscopically found tuberculous deposits three times.

Lewin[30] examined 200 cases of adenoids and in 10 of these he found tuberculous deposits. From his studies he believed that this latent tuberculosis of the tonsils can be not only the first but the only tuberculous lesion in the whole body.

Schreibner[31] made very careful examinations of 14 faucial tonsils and 15 pharyngeal tonsils. In none was he able to find tubercle bacilli, but in two of the pharyngeal tonsils he found typical tubercles and giant cells. In 32 examinations at autopsy, while not able to prove absolutely primary infection of the tonsils, he thought it most probable that in two cases such had taken place.

Rethi[32] examined 100 pharyngeal tonsils and found tuberculosis 6 times.

Hynitsche[33] reports the microscopic examination of 180 postnasal tonsils. Seven of these showed tuberculous changes. Tubercle bacilli were found in three instances, while the other cases showed tubercles made up of epithelioid cells and typical Langerhan's giant cells.

Baup,[34] in a very extensive article, probably the most

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[17] Lar. Sect. d. IX Intern. Congr., Washington, 1897, Centralbl. f. Lar., vol. iv, p. 186.

[18] Ueber das Workommen von Riesenzellen in den Adenoiden Vegetationen des Rachens, Societe Anatomique de Paris, March 25, 1892.

[19] De l'etiologie de la tuberculose des amygdales et de son traitement, Lyon Med., No. 16, 1894.

[20] Adenoide Vegetationen des Nasenrachenraums. 9 Französ, Congress für Chirurgie, Paris, October, 1895.

[21] Die larvirte Tuberculose der 3 Mandeln, Acad. de Med., April 30, May 7 u. 14, 1895.

[22] Tubercul. ulcer. del' amygdale, de la langue et du larynx chez un enfant de 8½ ans. Gaz. hebdom. d. sc. med. d. Bordeaux, March 8, 1896.

[23] Ueber primäre latente tuberculose der Rachenmandel, Arch. f. Laryn. u. Rhin., vol. iv, 1896, No. 3.

[24] Tuberculosis of the Tonsils Studied from a Clinical Standpoint, Virchow's Archiv, vol. cxliv, 1896, p. 431.

[25] Primäre Tuberculose der Mandeln, Soc. Anatom., Paris, June 11, 1897.

[26] Nasopharyngeal Adenoids, Edinburgh Medical Journal, No. 43, p. 1, 1897.

[27] Zur Frage der Tuberculose der adenoiden Wucherungen des Nasenrachenraumes und der Gaumenmandeln bei sont gesunden Leuten, Chirurjija, September, 1898.

[28] Die tuberculose der tonsilla palatina. Diss., Würzburg, 1899.

[29] Hyperplasie und Tuberculose der Rachenmandel, Wiener klin. Woch., No. 39, 1899.

[30] Ueber Tuberculose der Rachenmandel, Fränkel's Archiv f. Laryngologie, vol. ix, p. 377, 1899.

[31] Bilden die Tonsillen haüfige Eingnagspforten f. die Tuberceibacillen, Deutsche med. Woch., 1899, No. 21, pp. 343-348.

[32] Latente Tuberculose der Pharynxtonsillen, New York Medical Record, Aug. 4, 1900.

[33] Anatomic Investigations on the Hypertrophy of the Pharyngeal Tonsil, Archives of Otology, 1900, p. 357.

[34] Les Amygdales Porte d'entree de la Tuberculose, Paris, Georges Carre et C. Naud, 1900.

never place his tubercle bacilli in normal nasal cavities
mating the qu sopharynx. The retention in the nose
are more accu bacteria is favored by hypertrophy of the
cision for mak sil. The normal secretions of the nasal
the operator. It vital bactericidal property when over-
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te glass; this do forces any mucus with the con-
as some rays w y into the crypts and folds of the
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of sheet lead with the cervical glands is, as we
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Although it is highly probable that t text-books on
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leading in the secondary stration let me briefly quote
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room. This is especial years old, extremely poorly nour-
laboratories whe the result of a retropharyngeal abscess.
whe re many mortem the upper deep lateral pharyngeal
Since were found caseous and enlarged. The retro-
aryngeal space, by the breaking down of the retro-
few yngeal glands, had been converted into a large
sputu s holding two or three ounces of purulent material.
both bronchial and mesenteric lymph glands showed
frequen losis and there was a small abscess at about the
infect a dorsal vertebra. There were beginning tuber-
of tubercl anges of the spleen, but no involvement of the
PRI kidneys. The most interesting point in the
e finding of distinct tuberculous lesions in the
We now co tonsil. The pharyngeal tonsil drains di-
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to decide, even the upper deep cervical glands. As these
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culous lesion is the o the consequent involvement of the
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Brown[17] reported a case of a woman with a tubercular in the ulceration on the left tonsil. This healed up under villi applications of lactic acid without any involvement of other organs.

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Tusseau[19] has observed 3 cases of primary tuberculosis of the tonsils. He believes that it was possible micro- infection to take place from the food. is cut nclud- w any eneath pigs do

pigs was to place as much as possible of a pure culture of the mastoid process. They are dependent for their mal's mouth.

Guinea-pig No. 1 was inoculated on March 18, 19, 21, 22, 23, 24, 25, 26, and killed on March 28 with chloroform. At the postmortem the submaxillary lymphatics and other cervical lymph glands varied in size from a millet seed to an oval form not more than one-fourth inch long. No traces of tuberculosis could be found in any portion of the body.

*Microscopic Examination.*—The microscopic examination showed a slight proliferative inflammation of the cervical lymphatics.

Guinea-pig No. 2 was inoculated in the same manner and at the same time as guinea-pig No. 1, but was not killed until April 7. At the postmortem the submaxillary glands were very slightly enlarged, possibly a little more so than in guinea-pig No. 1. There was one slightly enlarged bronchial gland, and a small white node on the left kidney. There was no lesion in the lungs or other viscera, and no enlargement of the mesenteric glands.

*Microscopic Examination.*—Microscopic examination showed no tuberculous lesions.

Guinea-pig No. 3, *inoculated in the same manner and at the same time as guinea-pig No. 1*, died on May 9.

Postmortem examination showed marked enlargement of the submaxillary glands and of the deep cervical. The largest of the cervical glands measured one-fourth inch in diameter. The bronchial glands were matted in one large mass, measuring ½ by ¾ of an inch. The mesenteric glands were markedly enlarged, almost twice as large as the cervical or bronchial glands. The lungs were congested and showed scattered miliary tubercles.

*Microscopic Examination.*—The cervical lymph glands, the bronchial glands and the mesenteric glands all showed distinct tuberculous disease. In all numerous tubercle bacilli were found. In the lungs there was congestion and catarrhal pneumonia, but no distinct tubercles and no bacilli.

*Summary.*—The first guinea-pig, killed ten days after the first inoculation, did not show tuberculosis. The second guinea-pig, killed twenty days after the first inoculation, also did not show tuberculosis. The third guinea-pig, dying fifty-two days after the first inoculation, showed a general tuberculosis of the lymph glands, those of the mesentery being most diseased. The case is evidently one of tuberculous infection taking place through the gastrointestinal tract. The inference to be drawn from these three experiments is that, in the absence of tonsillar tissues in the throat, the tubercle bacilli will infect the mesenteric glands as easily, if not more readily, than they will either the cervical or bronchial glands.

Baup[34] attempted to produce tonsillar tuberculosis in two dogs and seven rabbits. He failed entirely with dogs on account of the rudimentary condition of the tonsils. In rabbits, however, he found it very easy to produce a pharyngeal tuberculosis and could limit the lesion to the tonsils by careful manipulation and regulation of the dose. In animals thus inoculated, thoracic and abdominal tuberculosis was very rare, but involvement of the glands of the neck almost constant. He believes that the infection took place through the tonsils though he did not find the tubercle bacilli in the tonsillar tissue. Ravenel[45] infected four hogs through the mouth by feeding them ten meals containing pure cultures of the tubercle bacilli. All of the animals contracted general tuberculosis, most marked in the lungs and ending in death. In three of the four hogs ulcerative lesions of the tonsils were present, and in the fourth many tubercle bacilli and areas of caseation were found by the microscope in the tonsils.

The throat of the hog is well supplie

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[17] Lar. Sect. d. IX Intern. Congr., Washington, 1897, Cent f. Lar., vol. iv, p. 186.

[18] Ueber das Workommen von Riesenzellen in den Aden Vegetationen des Rachens, Societe Anatomique de Paris, Mar 1892.

[19] De l'etiologie de la tuberculose des amygdales et traitement, Lyon Med., No. 16, 1894.

[45] The Passage of Tubercle Bacilli

these agents for protection, would it not be safer for the infection to occur through the tonsil than through other portions of the nasopharynx? There are always leucocytes wandering outward between the cells of the epithelium of the pharynx and nasopharynx, and it is through these openings that the tubercle bacilli enter when the tonsil is infected. Around the mouths of the racemose mucous glands we frequently see masses of lymphoid tissue which we term follicles, which are just as capable of infecting the system as the pharynx or the faucial tonsils. When 1,671 cases have been found in literature, and only 5 per cent. of them with tubercular tonsils in non-tubercular individuals, the percentage is seen to be very small. A much greater per cent. of these individuals, according to prevailing theories, must have had some form of tubercular infection if they live to 30 years of age; the tonsil is to blame in but 5 per cent. The tonsil is probably not the only point in the upper air passages through which the infection can enter. If it be true that the healthy tonsil protects itself against the invading host of germs, ought we so resolutely to bend our efforts to the eradication of this tissue? In all our literature on tuberculosis it is evident that the lung is the place of least resistance. Why is it that when we have an infection in any part of the body that the lung is the place that gets the final infection? The question has not been entirely settled, but I think sufficient attention has not been paid to the investigations of Dr. Miller of the University of Wisconsin, who has given especial attention to the study of the minute anatomy of the lungs. He finds that there are islands of lymphoid tissue well down toward the lobules. I believe that we harbor the germs in our bronchial glands or elsewhere in the system, and they are finally presented to the circulation in the lungs. The germs then multiply, especially in these lymphoid portions. Dr. Wood's work shows the absolute possibility of infecting the tonsils by a very simple process, and his observations concerning the production of miliary tuberculosis in certain cases are most interesting.

DR. J. J. KYLE, Indianapolis—One reason why secondary tuberculosis of the tonsil has been overlooked is because we have been considering tuberculosis as an incurable disease. At the present time we know that the majority of cases of tuberculosis of the lung get well under favorable circumstances. I can not but think that in the majority of cases it will become a routine practice to remove the tonsils in all cases of tuberculosis of the lungs. In a number of cases coming under observation of hyperemia of the tonsil and pharynx with tubercular infiltration, removal of the tonsil has effected changes for the better in the metabolism of the patient.

DR. C. M. COBB, Boston—One point brought out in the paper seemed to me of special importance, namely, that the point of entrance was diseased. Quite a large number of cases of subadenitis do not have active tuberculosis of the tonsil or ulceration of the tonsil; if the infection is tubercular, it either comes from some other part of the body or else the adenitis is due to the presence of some other bacteria.

DR. EMIL MAYER, New York City—The practical side of Dr. Wood's paper is that primary tuberculosis of the upper air passages is found in the pharyngeal tonsil at an early date, and we are, perhaps, too lax in not examining lymphoid growths that we remove. A case in point is that of a young lady who was referred to me for a slight irritation in her throat. Her physician found evidences of consolidation, and desired all irritative conditions attended to. I found adenoids and removed them; these on examination were found to contain tubercle bacilli. An early diagnosis of tuberculosis was thus made possible long before it could be established in any other way, to the ultimate benefit to the patient.

DR. ROBERT C. MYLES, New York City—It has been a question with me ever since I began the study of diseases of the respiratory tract that if 80 or 90 per cent. of people have tuberculosis in some form, and 12 per cent. die, in what way does the infection take place? I believe it is through some of the lymphatics of the respiratory tract. Absorption may occur in the small area between the rhinopharynx and the larynx and be carried through the circulation into the lungs. That has always been my idea, but I could never prove it, and Dr. Wood is now doing this.

DR. E. FLETCHER INGALS, Chicago—Is the danger of infection greater through diseased tonsils than through healthy tonsils? The significance of the number of cases in which the bacillus has been found in the tonsils is hard to determine. Dr. Swain placed the percentage of tuberculosis very low as compared to the figures of Nageli. His thorough examination of 500 successive bodies showed the tubercle bacillus present in 97 per cent., and as he did not find it in any children under 1 year of age, and in only a few cases of children under the age of 6, it appears that practically every adult had the infection somewhere in the body. So it is not singular that it is found in the tonsil in 5 per cent. of cases.

DR. NORVAL H. PIERCE, Chicago—The presence of epithelioid cells and giant cells around a common center is not conclusive evidence of tuberculosis. I believe the only real conclusive evidence is the reproduction of tuberculosis after the infection of animals, and not even this can be considered absolute evidence, because the bacilli may have been taken from the surface of the tonsil when the emulsion is made. I do not think we should be led by this paper to look on every tonsil as an enemy, and that we should not operate on every tonsil we find to be slightly enlarged. I believe too much of that is being done; as we can never take out the entire tonsil, it is better not to touch it at all than to leave a mutilated base which will be all the easier to infect. Of course, where the tonsil is enlarged so much as to interfere with respiration or speech, or where there is demonstrable disease of the crypts, then it should be removed; but this should not be done simply because it may become the seat of disease.

DR. E. PYNCHON, Chicago—Any tonsil that pours out a diseased secretion can not be a healthy tonsil. Any tonsil that can absorb tubercular germs is not a healthy tonsil, and it is advisable to totally remove it. It must be remembered that a tubercular patient is in position to receive a fresh infection, and, therefore, these diseased tonsils, when present, should not be allowed to remain. I have frequently done this operation on tubercular patients, with the most favorable results. As regards the failure to thoroughly remove the tonsil, I claim that if by my method I can convert that space into mucous membrane free from all visible follicles, leaving it as pink as the roof of the mouth, I have practically cured the condition and thoroughly removed the growth.

DR. G. V. WOOLLEN, Indianapolis—In 1888 I said there was no such thing as a tonsil as an anatomic structure, and I have repeated that statement on several occasions since, and have been freely criticised for it. We go on talking about healthy tonsils and diseased tonsils as if there were such a distinction. All tonsils are diseased tonsils; they are pathologic and not anatomic products. If you view this subject from the standpoint of diseased throats, making the examination of people promiscuously, you will find a small percentage of tonsils. Since 1888 I have made a record of every case examined and noted all kinds of tonsils, large and small. I have never looked over my record, but I think I am safe in saying that not more than 25 per cent. of patients examined show anything like a tonsil. If my observations are correct, they play a small part in the production of disease. One out of every five people dies of tuberculosis; it is the great white plague. If these figures be correct, and if only 25 per cent. of diseased throats have tonsils, and 5 per cent. of this 25 per cent. have infection, it greatly minimizes the matter. I throw this out as a suggestion, and not as criticism, for I want Dr. Wood to continue his investigations.

DR. EDWARD R. BALDWIN, Saranac Lake, N. Y.—There is difficulty encountered in the technic of experimentation and there are few experiments which have brought much of value to the study of this subject. The question at the present day is regarded as one of the most important in the whole field of medicine. It is being fought over throughout Europe, whether the invasion of tuberculosis is through the intestine, tonsil or nasopharynx; or whether it is inhaled directly into the lung. The

for each eye. The eyes look out (lateral) and are capable of little movement, probably because the range of vision in the fish is necessarily small. The movement of the eyeball is practically confined to a forward one. The eye fits snugly into the rounded orbit, and the two recti, internal and external, take their origin well back on the posterior (caudal) wall. The insertion of these two muscles is about the same in the human being—equidistant from the corneal margin into the sclerotic.[*] The line passing through these insertions falls within the plane of muscular attachment, and is at right angles to the apparent optical axis—the direction in which the eye looks. The origins of the internal and external recti are about the same, but the internal is longer and swings around the back of the eyeball to the anterior (cephalic) insertion, while the external is short and direct. The arrangement shows clearly that the internal rectus is more powerfully placed and has the greater range of action—anatomically, leaving the check ligaments out of the question, the direct opposite of the human. The animal tends to see what is in front of it rather than what is behind, probably relying on the special development of the nervous system for protection from that quarter.

In birds, the owl family excepted, the arrangement is similar to that in the fish, except that the anatomy of the eye is intrinsically different and that the range of motion, because of the larger orbits, is necessarily greater. The bird, like the fish, is monocular in vision. The orbits are perhaps a trifle less divergent and comparative measurements must be made to determine this point. The internal and external recti have the same relation to the orbit and eyeball as in the fish and reptile.

Passing from bird to mammal and through a series of the mammals from types with the most divergent eyes to the highest forms with sustained binocular vision, I note, according to Johnson, the divergence in each eye, for the hare, 85 degrees; for the giraffe, 72 degrees; for the skunk, 45 degrees; for the pig, 33 degrees; for the dog, 20 degrees; for the cat, 10 degrees; for the lemur, about 5 degrees, and for the monkeys and apes, as in man, no degrees. As the animal advances in the scale, the eyes become more ventrally placed, the exceptions being found in the monotremata and the bats, where the position of the eyes is probably a special development dependent on the habits and environment of the animals.

The hare, with eyes each 85 degrees divergent, enjoys a visual field of 190 degrees for each eye. The fields cross in front as well as in back and the animal sees the whole horizon without moving the eyes or the head, a feature necessary to the protective motionless position and unimpeded flight. This animal, according to Johnson, is probably capable of receiving sharp impressions, even to the periphery of the visual field, and for this reason there must be some binocular vision for objects directly in front and in back. Probably no mammal is strictly monocular, although that is the usual mode of vision.

As we pass from the lower forms to the higher, the visual field becomes more and more contracted and the animal moves the head and the eyes, preferably the former, to make up for the deficiency. Up to the *Simiæ* the eye movements are not co-ordinated and are merely accessory to the head movements. In the dog, for example, the head movement is well developed and a decided preference for monocular vision is displayed. This is also manifested in the cow—the animal always turns the head and is content with monocular vision. In the cat the divergence is not so marked—first, because it is a higher form than the dog, although not nearly so well domesticated, and second, because its prey is small and usually directly in front of it.

In the next highest family, the *Prosimiæ*, we find the nearest approach to the monkey. These small nocturnal animals (lemur, tarsius, etc.) have a divergence of about 5 degrees for each eye. In the monkeys, apes and man, the divergence is entirely overcome and the eyes are placed with parallel axes. The plane of muscular attachment remains the same at right angles to the apparent optical axis in all mammals, but the eyeball in man is rotated through 85 degrees on comparison with the hare. All mammals with eyes of less than 25 degrees divergence each are twilight animals, with the exception of the *Simiæ*.

In the advance from the *Prosimiæ* to the *Simiæ* several marked differences appeared. The *Simiæ* were probably developed from a twilight form into a daylight type and a portion of the retina lying directly in the visual axis was specialized for acute daylight perception. With the sustained parallel axes, the co-ordination of the eye movements was developed. The macula lutea, sustained binocular vision and co-ordinate eye movements are therefore confined to monkey, ape and man.

During the rotation of the eyeball to the front, the orbits also became less divergent. While in the fish the eye fits the orbit, in mammals the orbits become relatively larger and more pyramidal as the form advances. The primitive origin of the internal and external recti, however, is maintained. Both muscles elongate progressively, particularly the external rectus. The orbits approach each other until the two inner walls are parallel and in relation with the nasal fossæ, as in man. The outer wall is directed at an angle of 40 degrees to the inner, giving an orbital axis in the human being of 20 degrees divergence from the middle line.

If a human eye were to be placed in an orbit of 20 degrees divergence and if the recti were of equal strength, the optical axis would correspond with the orbital axis, the plane of muscular attachment would be at right angles to both axes, the recti would be of equal length and the eye would be 20 degrees divergent, as in the dog, and muscularly balanced. The 20 degrees divergence is overcome by a rotation of the eyeball and, undoubtedly, is phylogenetically due to muscular pull. As the muscles rotated the eyeball, however, they obtained ligamentous support from the walls of the orbits—the check ligaments—which "took in the slack," as it were, and limited the amount of return to the former state. In every mammal there is a tendency toward a reversion to a lower form and the apparent optical axis is less divergent during life than after death or during a state of perfect muscular relaxation—sleep or anesthesia. The ligamentous support limits the amount of divergence and theoretically no mammal should revert to a greater degree of divergence than the next lowest form. In man, for example, the latent squint normally should not be more than the position of the eyes in the *Prosimiæ*, or 5 degrees divergence for each eye—exophoria in contradistinction to divergent strabismus. In dogs, as in monkey and man, the eyes roll out during sleep and anesthesia, or after death.

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[*] The equidistant insertion of the recti muscles from the corneal margin is granted to avoid complicated angles. The spiral line of insertion is too well known to need any mention.

In the development of the human embryo we find a similar picture to that described for the ascending scale of mammals. The eyes develop on the sides of the head, as in the fish—a relic of our ancestry. Gradually, with the formation of the face, they are brought around to their permanent ventral position and are in place about the end of the second month. In this the ontogeny agrees with the phylogeny and the rotation as described in the mammals is also to be found in the developing embryo.

With the upright position a second displacement of e eyeball was necessary. The eyes in the lower mamals are directed on a plane with the horizontal vertebral column or above this plane. With the assumption of the upright position, the head was not tilted forward to an angle of 90 degrees to the animal head, and the eyes were depressed to maintain the horizontal plane. This naturally involves a strain on the inferior rectus. In the relaxation occurring during anesthesia the eyes of the monkey, as of the man, roll up and out—the position of perfect muscular rest and ligamentous support. In the horizontal position, the eye is held by the internal and inferior recti, but when the eyes are raised the strain, otherwise shared by the inferior rectus, is thrown entirely on the internal rectus and for this reason the latent divergence is more marked when looking up. The latent squint is therefore indirectly affected by the upright position because of the poorly balanced and heavy head tending to drop forward, which tendency is made up in an elevation of the eyes.

The reversion of the eyes to a former position is not entirely confined to the amniota. In the flat fish family (*Pleuronectidæ*) during the earlier periods in the development, the fish is like any other fish. When it reaches a certain stage it lies down on one side on the bottom. The eye that is directed down is then pulled to the top side of the head, mostly through muscular effort, and in the adult living flounder the eyes are side by side and are parallel or even convergent. On the death of the fish they become widely divergent, illustrating the tendency to assume the original position and acting similarly to the divergence in the eyes of dogs, monkeys and man.

The stimulus to the animal to see what is directly in front of it attains its highest development in the Simiæ who use both eyes. Man, however, carries the matter still farther and develops an inco-ordination of the eye muscles to enable him to see things which are close by with both eyes. The monkey can only maintain a limited convergence for a short time and man, as Johnson says, is the only animal with sustained convergence. As man advanced, the near work became more and more essential and convergence was correspondingly more developed until at the present day the eye has practically become a contact organ, as well as one of distance perception. (Emmetropia.)

Convergence is ontogenetically a trained effort and, like any trained effort, is best developed when begun early. The training of convergence ought, therefore, to be marked in the precocious myopic child who prefers to read rather than to play, and, because such children begin the near work at a very early age, the latent insufficiency should theoretically be less pronounced than in the hyperopic individual whose refraction interferes with this exercise. Whether the distortion of the eyeball has anything to do with the matter is still to be determined. The matter is still hypothetical as far as I am concerned. I shall endeavor to measure volunteer students for the grosser errors of refraction and for the amount of latent squint in each case and shall present my findings in a future paper.

Sightseer's headache, therefore, is not due to the strain on the elevator muscle, as suggested by Snell, but to the greater strain on internal rectus to overcome the more marked divergence in the raised position of the eye. Convergence when looking up is an appreciable effort and, granting that there is always a muscular pull necessary to hold the parallel axes, this slight exertion is also increased.

There is a tendency toward a divergence in all mammals. In the highest form the muscular effort is increased because the orbits are not capable of any less than 20 degree divergence and a rotation of the eyeball is necessary. The check ligaments are probably the means of limiting the divergence in muscular relaxation. The latent squint is overcome in man mostly through an early training of the adducting muscles for convergence and, finally, exophoria has a phylogenetic origin which is substantiated in the ontogeny and is an inheritance from a lower form.

The explanation of the refraction errors is not so simple. Are they, as Johnson suggested for animals, a result of domestication? What is domestication but an adaptation to unnatural and false surroundings with more or less complete interference with the laws of natural selection. The survival of the fittest, as far as the eyes are concerned, is undoubtedly interfered with in the present civilized state. Rabbits, dogs and horses are subject to myopia and astigmatism—a difficulty unknown in the wild state. All wild animals, with few exceptions, and those to be found mainly in the semiaquatic forms, are hyperopic and anastigmatic, including savage man. With domestication the same eye errors arise in the animals that occur in educated man, and it appears that the individual with degenerate eyes is better fitted to survive than his far-sighted brother.

Emmetropia is an adaptation of a far-sighted eye to near work, through development of the muscle of accommodation. Is this any different from the arrangement found in the seal, where a slit pupil and highly developed accommodative apparatus overcomes the enormous astigmatism? The normal eye was not made for near work and must be considered a mildly hyperopic eye with a limited degree of latent lateral squint. The adaptation of the eye as a contact organ seems to be inevitable. This is the age of the short-sighted with the large amount of necessary reading, the instruments of precision and the arts involving the near work. The oculist may step down the hyperopic eye with the + spherical, but the muscular insufficiency always remains the unsurmountable obstacle. As age advances the eye loses accommodative power and near work is made still more difficult in the approach to the animal normal. It appears that the more perfect our eyes are the less they are adapted to the present conditions.

It leaves the problem in a very interesting situation. Are we voluntarily to become a race of myopics or are we going to hold to the animal normal? The answer is obvious, and to achieve this result two things must be accomplished—as far as possible the eye must be fitted for the present conditions, and a reasonable method must be found of doing a large part of the near work in the distance. The errors in refraction may be corrected, but distance work decreases the strain on the already poorly placed internal rectus muscle.

The subject is not without its pedagogic side, but this must be deferred until later, when all the inferences shall have been verified or disproved. For further investigation of the comparative anatomy, I have two fishes with normal eyes and the complete series of the flounder, including all the changes in position from the beginning to the completion of the wandering. In birds, I have also two species with normal eyes, and the owl as the aberrant type. In mammals, I have the hare, skunk, pig, dog, cat, lemur and man—of the latter embryo and adult specimens. This material will be supplemented by investigations on normal individuals in order to obtain the grosser refraction errors and the muscle status.

I shall be grateful for any criticisms or suggestion regarding the ideas advanced in this article or in the methods to be followed, and I shall take pleasure in replying to and in acknowledging such communications.

# SOME ASPECTS OF SCIENCE AND FALLACY AS THEY RELATE TO MEDICINE.*

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> "Faith, fanatic Faith, once wedded fast
> To some dear falsehood, hugs it to the last."

In the preparation of this paper I have had in view several motives. First, to emphasize the fact that the practice of medicine consists simply in the intelligent application of common-sense principles and forces. It has nothing of the mysterious and supernatural about it. The further one gets from common sense the further he gets from scientific medicine.

Second, to call general attention to the value and to the dangers of that force which we call "suggestion." For, while the forces of nature intelligently employed may result in great good, wrongly employed they are equally as potent for harm. Take whatever force or power you will and reason out the principle; see if these powers wrongly used are not equally as dangerous as they are beneficent when rightly used. Merely for illustration, I will mention fire, water, powder, dynamite, steam and electricity. Anything incapable of doing harm is also incapable of doing good. To argue, then, that anything may do good should suggest that it may do harm. Yet many people seem to think (and it is because they are ignorant of the forces) that they can try with impunity any quack remedy. We see the results often when it would not be humane to the victim to relate the consequences.

Third, I wish to call attention to the danger of drawing deductions from imperfect knowledge or when unfitted by education or training to discriminate. As the same end is at times obtained by widely different means, the question is suggested, what, then, is the force or what are the forces giving rise to the results? These are usually the curative power of nature; in some, nature plus suggestion, etc. On the other hand, in many instances, there is self-deception. Just as in consumption the sufferer often fancies he is improving, so thousands of certificates of cure have been obtained from the diseased whose troubles were never delayed and who never received the slightest benefit from the treatment. They are like "Sir William Edward Peary and his party, who were going straight towards the pole in one of their Arctic expeditions, traveling at the rate of 10 miles a day, while the ice over which they were traveling was drifting straight to the equator at the rate of 12 miles a day, and yet no man among them would have known that he was traveling 2 miles a day backward unless he had lifted his eyes from the track in which he was plodding."[1]

"The science of medicine had its birth in necessity."[2] It has materially lengthened the average duration of human life, and rendered worth living the lives of countless thousands. It has reached a point in its development where its claims as a science are generally acknowledged. Yet, as from primeval times to the present, fallacies have so often been exploited as infallible cures, I think an analysis of some of them may prove interesting. With each changing cycle some new error is born, to be in turn clasped to the bosom of those "who follow the lead of their emotions" rather than the dictates of common sense and, as Gould states, "the emotions are good incentives, but poor guides."

Four hundred years before the birth of Christ, Hippocrates wrote: "Life is short and the art long; the occasion fleeting; experience fallacious and judgment difficult." Though the truth of this aphorism, which has come down to us through the centuries, is fully appreciated by the thoughtful physician and is as true now as when written, it is really wonderful to note, even in this advanced age, the ease with which so many people succumb to "fallacy" and, finding a sprig of truth, at once mistake it for the whole tree, trunk, roots and branches, and attempt thus to make the part greater than the whole. The scientific physician is neither the slave of custom nor the victim of circumstance. In the pursuit of his calling, he brings to his aid many forces the logical application of which tends to alleviate human suffering and to dissipate disease. Wedded to no creed, handicapped by no narrow dogmas, above the plane of blinding prejudice, he toils on, bringing to bear on the case in hand whatever force or forces reason and wisdom have shown to be of value. Even with this, "it takes half a lifetime to learn how not to make useless mistakes." (Gould.)

In regard to the many panaceas that have at times claimed the attention of the public (besides the curative power of nature, which many seem never to have considered), one dominant force pervades them all. A force which has been used and utilized from the days of Hippocrates to the present time. A force which has been used ignorantly by the untrained, who never appreciated its character, its source, its powers or its limitations. It runs like a thread through every method of treatment, wise or otherwise. It is this force and nature which give a life-history to every new form of treatment, however absurd it may be. I refer to the power of "suggestion," now vulgarly known as the "mind cure." Its use is as old as history, but it is a force hardly yet fully appreciated by some and by others employed to a degree beyond the warrant of reason. "The earliest practitioners of medicine concerning whom we have any authentic information were the Æsclepidæ, or priest-physicians, who endeavored to cure the sick partly by superstitious modes of working on the imagination" (mind cure), "and partly by more rational means, suggested by observation and a patient study of the phenomena of disease."[2] That "suggestion" is a power for good in suitable cases every physician knows: that it is also a power for evil the many wrecks of Christian science and like methods of treatment abundantly attest. The desirability at all times of a proper mental attitude is suggested in the legend of "Pandora's Box." She unfortunately turned loose on the world all the evils therein contained, but shut the box just in time to prevent the escape of "Hope." The good effect of mental measures has been recognized for centuries, not only for its influence on the body but its influence on morals as well. For instance, in Philippians, fourth chapter and eighth verse, the advice is given, "whatsoever things are true, whatsoever things are pure," etc., "think on these things." Suggestion is the secret power of the mother's kiss, which so quickly dissipates the pain of the minor bumps and bruises of childhood. It is the same power, acting through the lullaby of the nursery, that so quickly sends the child to the land of peaceful sleep. Songs often used for the same purpose gain by repetition in suggestive value. I suppose we have all been struck by the monotonous character of these songs. This serves a distinct purpose; the monotony of rhythmical sound through its influence on the brain enhances the sleep-producing power of suggestion.

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* President's address, read before the Middle Tennessee Medical Association, 1904.

[1] Holmes: "Currents and Counter Currents."

[2] Adams: "Life of Hippocrates."

These things all point to the influence of "suggestion," which I shall define as we usually attempt to use it in the treatment of disease, that influence which incites in the mental makeup hope, confidence, effort, determination, expectation or belief. This is usually accomplished through "assertion," repeated and re-enforced in every possible way. The forms of suggestion are many and the object aimed at generally suggests the method. At times almost any change in the mental state will accomplish the desired result. The main object is to change the whole current of thought from a morbid to a wholesome nature. Now, strange as this may seem from a casual examination of this form of force, it is a power that may be abused and may result in great and even in lasting harm. Carried to extremes, it leads to neurasthenia and to other forms of nervous unbalance. "But wise men have long ago come to the conclusion that truth does not dwell with extremes."[3] Imagine, for instance, the absurdity of the Christian scientists in denying the existence of pain and of disease of which their followers are constantly dying. Does this not prove mental unbalance? Yet who would deny that the "mind cure" in trained hands has its mission in therapeutics? "Mind cure, so-called (says Mitchell), has in some shape its legitimate sphere in men who know their profession." Further, he states, "I can not leave this subject without a further word of solemn warning. In my youth we had mesmerism with its cures, then we had and have spiritualism with its like pretensions. From time to time we have had faith-cures. They come and they go and have no stable life. The evil they do lives after them in the many mental wrecks they leave. When the charlatan, Newton, was ordering every class of sick to get well, I was called on to see case after case of the most calamitous results on mind and body. Now and then he had the luck to meet some one who was merely 'idea-sick,' a class we know well. Then he made a cure which would have been as easy to me as to him. I made much inquiry, but could never find a case of organic disease with distinct tissue changes which he had cured. A man with hopeless rheumatic alterations of joints was made to walk a few steps without crutches. This he did at sore cost of pain, and then came to me to tell his tale, with a new set of crutches, the healer having kept the old set as evidence of the cure. And now we have the mind cure, Eddyism and the like, a muddle of mystical statements, backed by a medley of the many half-examined facts which show the influence of mental and moral states over certain forms of disorder."[4] Mitchell states the case well; while it has its place in the hands of those "who know their profession," its attempted use by others frequently ends in disaster.

Goodell states in his article on "Nerve Counterfeits": "I know of another sofa-ridden lady of wealth who for many years had been treated by some of our best gynecologists. She was put on her feet and made well by a family quarrel resulting in a prolonged lawsuit. These are the cases which are so constantly being cured by mesmerists and itinerants, by faith and by pilgrimages." Archibald Church[5] states: "Suggestion, however, is a mighty aid to the physician, and without producing hypnosis positive and intelligent assertion can accomplish all that is likely to be done by hypnotism short of the somnambulistic stage. A fair realization of the part suggestion plays in therapeutics is one of the recent achievements of the most progressive medical minds." Again: "No scheme of treatment in neurasthenia is complete that ignores the mental element of the disorder." Again: "Recognizing in hysteria a mental disturbance principally, the treatment must be psychic. Methods are usually successful in proportion as they are novel to the patient, strike the fancy and stimulate the imagination."

Charlatans recognize this, hence the peculiar garb they affect; their long hair and the many other ruses practiced, seeking thus the aid of suggestion. So, it may be noted, "suggestion" is practiced in different ways. To the old question, "What's in a name?" I would answer, "Much." The quack appreciates this, and so his medicine is given some Indian or other uncommon name, the more suggestive of mystery the better. None of us are entirely free from superstition and, to some extent, such things appeal to us all.

To be a little more specific, I will briefly mention a few of the remedies that have been brought forward and that have at times achieved great reputation. First, the "weapon ointment."[6] This ointment was applied not to the wound but to the weapon that caused the wound. At one time it had great reputation and contained substances addressed specifically to the imaginations, as portions of mummy, of human blood, of "moss from the skull of a thief hung in chains." The wound was washed and bandaged and the ointment applied to the weapon. So here we get the advantage of the healing power of nature and suggestion. I will merely allude to the "royal touch" for "King's Evil" (scrofula), in vogue in England from the time of Edward the Confessor to that of Queen Anne. Besides touching the patient, a gold piece was ordinarily hung about the patient's neck. From this treatment (nature and suggestion), many immediate cures were reported. "Indeed, according to the statements of the advocates and contemporaries of this remedy, none ever failed of receiving benefit unless their little faith and credulity starved their merits. Some are said to have been cured immediately on the very touch, others did not so easily get rid of their swellings, until they were touched a second time. Several cases are related of persons who had been blind for several weeks and months and obliged even to be led to Whitehall, yet recovered their sight immediately on being touched, so as to walk away without any guides." So widely was this fallacy believed that in the course of 12 years nearly a hundred thousand persons were touched by Charles the Second.

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[3] Gould: "Borderland Studies."

[4] Mitchell: "Doctor and Patient."

[5] Nervous Diseases.

[6] I am indebted to Holmes' Essays (Homeopathy and Kindred Delusions), for my accounts of the "Weapon Ointment," "Royal Touch" and "King's Tractors," some of which is taken verbatim.

While this seems strange to us, stranger things are believed even in this age of enlightenment. Nature and suggestion were here the only possible forces. Of course, among many such cases and others to be mentioned there were many untimely deaths and much useless suffering. It reminds one of a man struggling in the water while senseless friends, instead of throwing him a rope, only encourage him with their shouts. The encouragement is good enough as far as it goes, but it needs to be supplemented. Of course babies, except in the lines indicated and those with clouded brains, as from fevers, could not possibly receive benefit from suggestion, and nature was then the sole dependence. While in ordinary diseases "suggestion" may or may not be of benefit, its field of great usefulness is in cases of disease more imagined than real. Those who are "idea-sick," or who suffer from "dream pains," and are frequently relieved by a hypodermic of water and, strange to say, there are others in whom opiates pushed to the limits of safety have no apparent control over the pain(?). These cases sometimes deceive for a time the most astute physicians, and we all know that in many instances of a supposed illness or rather when the disorder is entirely or principally mental, it is not prudent or wise to so inform the patient or the family; sometimes because we would not be believed, or because it would sacrifice the friendship of the patient or the family, or because it would uselessly mortify the patient, for she, too, is often deceived and intends no deception. Often to tell the patient would be to exaggerate the condition and defeat the plan of cure. It is possible that in these cases a future pathology may reveal some abnormality in the chemistry of the secretions.

The success of any given treatment is merely a matter of percentage. Cases of pneumonia, of typhoid fever, of consumption, etc., not infrequently recover without the aid of medicine or anything else except nature, but who in his right mind would be willing to pass through such an illness without the aid of a skillful physician, for his chances of recovery are then correspondingly enhanced?

"King's tractors" consisted of two pieces of metal, iron and brass. These were laid on the patient and were supposed to exert great healing power. Their period of popularity was from 1796 to 1811, and during that time 1,500,000 people in Great Britain alone were supposed (according to their publications) to have been cured by them. Nature and suggestion here could have been the only aids. But think of the useless suffering and sacrifice of life that must have occurred among those who were foolish enough to risk such a folly. The originator of these was a shrewd Yankee, who became rich from the credulity of the people. Clergymen were frequently given a pair along with the receipt of the usual cost price, five guineas. Many testimonials set forth the wonderful powers and virtues of these worthless objects and physicians were bitterly denounced for their skepticism. Even when physicians made imitations of wood and obtained the same results the storm of indignation against them was not allayed. At this day it might be possible to find a pair among the collection of curios of some medical man along with Mrs. Eddy's book, works on osteopathy, the electropoise, and other such things that are of peculiar psychologic interest to many of us.

Strange to relate, clergymen and religious bodies are usually first approached by such people and have proved the most credulous. Religion, unfortunately, has so often lent its influence to charlatans, or been designedly used by them, that medical men look askance at the man who mixes medicine and religion too freely. Religion should be a thing entirely apart from the practice of medicine and those who cherish its ideals should jealously guard it from the sordid, who would use it as a cloak for ulterior purposes. In reading the history of fake cures, one notes with a feeling of regret the number of certificates of clergymen as compared to those of other people. So marked has this been that it has long been a matter of general comment. They have been trapped into this by noting recoveries from real or apparent diseases and have gone no deeper into the matter than "*post hoc ergo propter hoc.*" Their intentions are good, but the evil they do is enhanced on account of their prominence.

Homeopathy, which Holmes said consisted of "sugar of milk and a nomenclature," has changed much of recent years. The most advanced homeopaths of to-day differ from us (in the practice of medicine) only in name. Most of them have now renounced the laws of Hahnemann and there is really no longer any excuse for the separate existence of the schools.[7] Many of their most successful practitioners and teachers use the same text-books and have simply changed their signs.

Of course, as a curiosity, one occasionally sees a true homeopath, but Mrs. Eddy boasts that Eddyism has practically usurped his place. As a matter of fact, the only advantage the strict homeopath had over Mrs. Eddy in the treatment was in diet and hygiene and in not trying to urge patients to that mental attitude which if completely attained must mean insanity—for no sane person could accept and believe such utter foolishness as Mrs. Eddy teaches. The Eddyites deny the existence of disease and when one is ill claim that he is not sick but only thinks so. They say that there is no such thing as poison, but that strychnin, arsenic, etc., become poisons just because they are thought to be so. This sometimes leads to rather confusing results. The following story from Mark Twain illustrates this point: "A certain mule was being fed on popcorn, when his well-stored crib caught fire. The heat caused the corn to pop, and as it fell back on him the mule, thinking he was in a snowstorm, froze to death." This, without any exaggeration, is a fair sample of Christian science logic. It reminds me of the comment of the *Medical Record* on a new form of treatment just being advocated, which was specially ludicrous. The *Medical Record* stated that the fellow would get rich if he could "keep his face straight long enough."

Mrs. Eddy, Dowie, and the fellow who gives absent treatment all seek the same end with somewhat different methods. To quote a lay writer and student of such methods, "Each of the indefinite number of sects of mental healers now in evidence in this country tells us that it has a law of its own, and that it is the only genuine article, all the others being only feeble imitations or wholly fraudulent, wicked and diabolical. They agree in but one thing and that is in hating the medical profession; and they hate but one thing more than they do that profession and that is each other."

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[7] Quine: "Reasons I Am Not a Homeopath." JOURNAL A. M. A. April 29, 1899.

Manipulations and movements are forms of force long used by the medical profession or under their direction. They are but branches of the tree of medical science and have their legitimate place as therapeutic agents. They also have their dangers, as is well known to medical men, yet the osteopaths have now brought these forward as cures for all ills. From them one gets the benefit, if benefit follows, of three forces, namely, nature, massage (and medicogymnastics) and suggestion. Cowling used to say: "Massage is a very good thing for a lazy man." This indicates partly its sphere of usefulness, but it is (rightly used) a power for much good in suitable cases. It is of real and decided value in quite a number of chronic diseases, but no osteopath, with his meager training, is able properly to select the cases. Some of their egregious blunders have come under my observation, and they would have been ludicrous had they not been so serious. The graduates in massage and Swedish movements are far more thoroughly trained than are the osteopaths and, in addition, they are not falsely taught.[8]

I would like, did time permit, to go a little further into these subjects, as well as to discuss other such methods in vogue in the treatment of disease. Many of them, as well as some I have mentioned, in many instances serve only to subvert the attention of the patient, while nature does, or fails to do, the work.

I would have no one think that any regular physician considers medicine a complete science. It is far from it. Neither would I have one think we are not cognizant of our many deficiencies. The very purpose of this association and of other similar bodies is to overcome these defects as far as possible. Even with these aids and added years of study and experience we can never even hope to perfect ourselves in this most difficult field of human endeavor.

## THE X-RAY TREATMENT OF MALIGNANT GROWTHS.*

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I began *x*-ray work as a skeptic, doubting the therapeutic value of the ray. After giving my first case of epithelioma six exposures and seeing the scab become thicker, I advised the patient to have the growth excised. This was done and I examined the tissue microscopically and was impressed with the decided retrogressive changes observed in the carcinomatous cells. The next epithelioma I treated with more confidence, and after six weeks' treatment it had healed.

The results of the practical use of the ray as reported by different operators have varied greatly. The general profession has been misled by the over-enthusiastic as well as by the pessimistic operators, so that the true value of the ray has yet to be demonstrated. It is not a magic light that will heal every malignant growth to which it is applied, nor should it be placed on the shelf with other discarded therapeutic agents. It is a natural force of great variation, having a decided influence on living organic matter.

The microscopic changes in the tissues which have been exposed to the *x*-ray have been studied and reported by many observers, and their observations, in general, agree. It is these observations which should give us the basis for the possibilities and limitations of the ray.

To determine the value of the ray as a therapeutic agent, we have to consider first the factors concerned in the production and variation of the *x*-ray and the methods of the application in treatment; second, the histologic changes due to the *x*-ray, and third, the nature and location of the growth to be treated.

The *x*-ray is capable of wide variation, both in its penetrating quality and in its intensity or effective energy. Among the variable factors which have to be considered in each treatment are the voltage and amperage of the current supplied to the primary, the number of interruptions made by the interrupter, the resistance in the secondary circuit represented by the number of spark gaps in series, and the degree of vacuum of the tube, the distance of the tube from the surface to be exposed, and the duration and frequency of the exposures. The successful application of the ray is dependent on the proper co-ordination of these factors for each individual case.

Until recently, there was no way to measure the energy given off from a tube. This could only be approximated by one's experience with his individual appalate or may even increase the vitality of the less differa distinct advance and enables one to measure the dosage with a fair degree of accuracy. The technic is being steadily improved by experience and the proper appreciation of the physical laws governing the ray, especially that the intensity varies inversely as the square of the distance.

With so many variable factors to be considered in the proper application of the ray, there is no wonder that the therapeutic results of different operators have been so inconstant.

According to the effective energy given off from a tube, there are decided changes in the tissues as revealed by microscopic examination; cells are affected and undergo atrophy, or granular degeneration. The nuclei stain feebly, become swollen, vacuolated and disappear or break into fragments. The cells swell, lose their outlines, become granular and disintegrate. These changes are especially noticeable in the cells of the glands, hair follicles, the skin and those lining the blood vessels, but to a less extent in the cells and fibers of muscles and connective tissues. The effects on these latter may be secondary, dependent on the inflammatory process resulting from the death of the cellular elements. There is more or less round-cell infiltration depending on the degree of reaction. The ray may stimulate or may even increase the vitality of the less differentiated tissues.

From these observations, it is evident that the elements of the tissues which are most affected by the ray are the cells and in the proportion that they exhibit the manifestations of life. Dead organic matter is not influenced by the ray. Another evidence that the ray acts on the vitality or life of a cell is the fact that a tissue, immediately after a destructive exposure to the ray, shows no macroscopic or microscopic change and it is only after the lapse of several days that the changes consequent on the death of the cells begin to appear. We would conclude, therefore, that the tissues most influenced by the ray are those having a large proportion of cells whose vital processes are very active. Such tissues are found chiefly in malignant tumors, carcinomas and sarcomas. It is on them, therefore, that the ray has the most decided effect.

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[8] Jakob Bolin: Journal A. M. A., April 6, 1901.

* Read by invitation before the College of Physicians, Philadelphia.

Sarcomas, as a rule, are more deeply seated than carcinomas; they contain more intracellular material and more blood vessels, and there is less rapid proliferation of the cells as evidenced by the fewer mitotic figures. These facts may explain why more carcinomas than sarcomas have been healed by the ray.

The benign tumors are composed largely of intracellular substance with a small proportion of cells not actively proliferating. They are, therefore, only slightly or not at all influenced by the ray. We thus understand why epithelial tissue, on account of the large proportion of cells, is affected more than any other normal tissue, and why the cells of the glands and hair follicles, because their vital processes are more active, succumb more readily to the ray.

If now, as it seems, the ray affects cells in proportion to their vital activities, it is to be expected that the actively proliferating cells of the malignant growths will be more susceptible to the influence of the ray than the cells of the skin and subcutaneous tissues which exhibit the vital manifestation in a less degree. This explains the apparent selective action of the ray for malignant growths. If the ray is properly applied, a tumor of this kind may be destroyed and may disappear without any destruction of the surrounding normal tissues.

From these considerations, we conclude that the prognosis in the treatment of new growths depends on the character of the growths and on their accessibility to the proper quantity of radiant energy. Since we have shown that the tissues composing the malignant growths are especially susceptible to the ray, the prognosis in their treatment depends on their accessibility to a ray of sufficient energy. Success or failure depends on the accomplishment of these two objects by the proper coordination of the variable factors in applying the ray. The light may have the proper energy, but unless it reaches the whole of the tumor, especially the periphery, where the most rapid growth takes place, it will be of no avail. On the other hand, the light may reach every part of the growth, but unless it has sufficient energy it will not accomplish its work.

From what has been said it may be inferred that the growths most readily and most uniformly healed are the superficial carcinomas and superficial sarcomas. This is the result of actual practice.

The deeper the growth the more doubtful becomes the prognosis because of the difficulty of carrying deep into the tissues a ray of sufficient energy to destroy malignant cells without destroying the overlying tissues. That moderately deep growths can be affected has been shown by many well-authenticated cases. The difficulty has been in establishing a technic by means of which results may be obtained with a fair degree of constancy.

For example, if a carcinoma four inches below the surface is being treated and the time required to destroy carcinomatous cells on the surface be one hundred (100) minutes, with a tube at a distance of ten inches, let us assume that one hundred and eighty (180) minutes will be required to destroy the healthy cells, the tube being at a distance of ten inches. According to the law of the variation of intensity, the equivalent of one hundred (100) minutes at ten inches is two hundred (200) minutes at fourteen inches. In other words, to destroy the growth at fourteen inches there must be an exposure of two hundred (200) minutes, which would cause a necrosis of the overlying tissues. But if we place the tube eighteen inches from the surface the growth will be twenty-two inches from the tube. The number of minutes required to destroy the growth will be five hundred (500), and the number of minutes required to produce a necrosis on the surface at eighteen inches will be six hundred (600). Thus we see that it is possible, by increasing the distance from the tube, to destroy a deep growth without destroying the overlying tissues. What is impossible to accomplish with a tube at ten inches is possible with a tube at eighteen inches.

In the example cited above there is a margin of one hundred (100) minutes. This can be drawn on to compensate for the loss of energy due to penetration. Another point to be considered in the treatment of deep growths is that the ray must be more penetrating. The more penetrating a ray the less is its effective energy, therefore due compensation must be made in the duration of the exposure.

In the preceding remarks I have attempted to give a clear idea of the *x*-ray as a therapeutic agent and the factors to be considered in its production and application and also to explain its influence on living cells and why it is especially adapted to the treatment of malignant tumors. It now remains for us to consider its use in the treatment of these conditions as compared with other therapeutic agents.

For superficial growths the ray is indicated because it is so uniformly successful, its application is painless and there is less scar and deformity and the growth is less apt to recur than with any other form of treatment.

For deep growths, until we can show more uniformly good results, radical surgical procedures should be recommended. We must give the patient the benefit of the probabilities and not possibilities. It is, however, but rational that the surgical procedure should be followed by sufficient *x*-ray exposure to destroy malignant cells several inches from the surface. This is possible, as has been shown, and the patient should have every possible chance to have the malignant cells completely eradicated or destroyed.

Inoperable cases should be treated with the ray because remarkable results have been obtained and the most distressing symptom, pain, may at least be relieved. It is by means of these cases that we must demonstrate the value of the *x*-ray and so extend its usefulness.

In conclusion, I would reiterate that we have in the *x*-ray an agent that has a specific and destructive effect on malignant tumors by taking away the life of their cells, and that its application in treatment is limited only by the ability to reach the growths with the proper amount of energy and safety to the patient.

This mysterious form of radiant energy is still in its infancy, yet, what it has already accomplished makes us hope and expect that by careful study and conservative practice we can bring it more and more to our aid, especially in destroying the malignant tumors, which are mercilessly attacking their victims with increasing and alarming frequency.

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Many cases of skin irritation in the fall in Canada are said to be due to the presence of particles of the Canadian thistle in the wool from which winter undergarments are manufactured.

# THE FEAR OF DEATH:

## MORBID MANIFESTATIONS OF THE INSTINCT.

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The instinct of life and the fear of death, the last but a manifestation of the first, occupy and have always occupied a supreme place in human consciousness. To mitigate the pain inspired by fear of death metaphysicians have goaded their wits since the beginnings of history, while believers in various religions, by affirming the existence of man beyond the tomb, have either diminished or increased the dread of dissolution, depending on whether or not the dogma was believed and whether happiness or the reverse was predicted.

This article is a consideration of the origin and nature of the morbid exaggeration of the natural, instinctive fear of death shown by some individuals and which, in some cases, amounts to a dominating tyrannical besetment, or to a monomaniacal obsession. This morbid dread of death is a psycopathic condition and concerns chiefly the neurologist and alienist, but any physician suddenly may be called on to treat it.

The instinctive fear of death, like the pain sense, is necessary to the preservation of the organism; the one is a psychical, the other a physical warning; the exaggeration of either is morbid, tragical. In animals, at least in those more highly organized, the dread of death plays a similar part, with this important difference, however, that whereas in the animal the instinct is aroused by the imminence of death only, in man, by reason of his intelligence, it is rife as a possibility of the present and a certainty of the future. This fact is by no means trivial; on the contrary, a due appreciation of its significance bears directly on the correct interpretation of that process which in the human subject underlies the development of the fixed, delirious dread we are now considering.

It is to be noted that the dread of death is usually absent during the actual process of dying. The submerging of the dominating concept, its disassociation from the field of consciousness by pain, as well as the eventual diminution of the acuity of consciousness itself, serve in most instances to account for the apparent paradox. The dread, then, is not evoked by the process of dissolution. In my opinion, it has and must always have as an indispensable condition to its true obsessional manifestation, a neuropathic foundation, either inherited or acquired.

The following case, taken from my own notebook, exhibits the essential psychology:

*Patient.*—Mr. H., a neurotic individual, already past middle life, consulted me some time ago in regard to an obstinate type of insomnia that had debilitated and racked him for a long time.

*Family History.*—His father, long since dead, was a native of South Germany, and had been of a highly eccentric and melancholy cast of mind. His mother, a native of Alsace, likewise deceased, had been a victim of night terrors and morbid religiosity. Of his remoter ancestry nothing significant was known.

*Personal History.*—I could gather nothing very characteristic of his childhood and early education save that, at school, his memory and appetite for mathematics gained him commendation. From the obvious blight resting on his immediate progenitors the patient had not escaped. He was somber, shrinking, unstable in his moods and purposes, and subject to sudden and uncontrollable outbursts of anger on insignificant provocation. He showed at least three of the physical stigmata of degeneration—asymmetry of the head and face; small ears, undeveloped and ill-set; and a well marked *taurus palatinus.* At puberty, however, or shortly afterward, his thoughts and dreams were tainted with lasciviousness, while at the same time he underwent an extraordinary experience of religiosity. Later, when set to work in a commercial house, he began to dabble in the writings of speculative philosophers. These and other unfathomable crotchets, colliding with the theological concepts of an earlier day, made havoc of his peace of mind, transforming consciousness, as it were, into a kind of Donnybrook. A victim of this welter of antagonisms, pirouetting precariously between his theology and his philosophy, he became in opinion as vagrant as a shuttlecock. He began to be afflicted by the dolor of uncertainty and by the mental pain consequent not so much on the character of his conflicting ideas as on the conflict itself. Later, when this uncertainty as to his earlier beliefs had deepened into conviction of their falsity, he suffered acutely from the pain of disillusion. The belief in the possibility of a future existence, of the preservation of his ego through all eternity having vanished, he could detect no "meaning" in his present life. Yet despite the apparent tragedy involved in the conviction he clung to life with a tenacity born of this sense of its evanescence and of its futility.

*Symptoms.*—With the stir of his enhanced desire to live, he began to have a fear of death increasing in poignancy with the vanishing hours and days. During the day he thought of it, spoke of it; at night he conned the trist outgivings of the sages, mournful cajolery of death, assembled by his dark infatuation into a kind of mortuary library. So wakefulness left him at the coming in of day, a sad, disheveled figure, limp, wan and impotent. He was thoroughly obsessed by this; his whole mentality circled, as it were, about that black, imperious concept of death. Persecuted day and night by his implacable besetment, his terror took on a new aspect; he began to fear his fear or death, to regard with the poignancy of an unutterable consternation, not the idea so much as its relentless pursuit of him. He began, at length, to long for rest and oblivion. Then he declares he heard a voice at night, during the flickering consciousness of half slumber, saying: "Make away with it—of yourself! Put a term to the eternal thrall of consciousness! Away! Away! Death to escape death!"

*Treatment.*—He was put on large doses of sedatives, which quieted him considerably during the day; at night hypnotics of the more potent sort procured him betterment both in the amount and quality of his sleep. In time his appetite improved and in due course his general bodily condition. This renewal of energy, coupled with the prolonged exemption from his obsession produced by forced sleep, caused an abatement of his suicidal thought. From the morbid dread of death, obtruding itself during the waking interval, nothing, however, has availed to relieve him.

In another case, that of a degenerate, religious man of 35, the evolution of the fear of death was different, having been inspired not by lack of, but rather by belief in a life after death, with the accompanying corollary of condign retribution beyond the grave.

Coming on in the train of a severe illness (typhoid fever), this dread, growing steadily in intensity, attained to the dimensions of a monomaniacal besetment, against whose fixity arguments were of no avail.

Here the use of stimulants, notably opium, with forced sleep and change of scene and occupation, achieved a considerable mitigation. But neither absolute freedom from the delirious idea nor exemption from sudden and unaccountable exacerbations in its dominant intensity was ever attained.

Such cases as these, especially at their anxious climax, have often been taken for melancholia. This is a great error. In melancholia the emotional disturbance—the depression—is the primary factor; in monomania the intellectual element—the delirious idea—comes first, the unrest and anxiety being largely if not entirely secondary. Moreover, the peculiar etiologic feature of monomania, degeneration, with its characteristic mental discords, marks the fundamental cleavage between the two disorders.

While these cases are undoubted instances of monomaniacal obsession, the morbid fear of death does not always go to such extremes. There are, in fact, individuals, religious or philosophical, or neither one nor the other, who disclose this dread in such full measure, harping on it in conversation, or dwelling on it in their meditations, that it is apparent that in them the sentiment has become, as it were, a veritable "hypertrophy," monopolizing consciousness, casting precursory shadows on the mind, and despoiling life of its heritage of happiness. Such persons, while usually free of the brand marks of degeneracy, frequently disclose a neurotic, hypersensitive temperament. They are acutely aware of the dissonances of existence, and alive to its pains and disappointments, and they can not endure to behold in others sufferings which are so poignantly appreciated by themselves. To these persons pain is the positive, pleasure the negative element of life. As has been said, neither religion nor philosophy avail to quiet in such persons the heightened sense of the inevitable tragedy. Having had repeated and convincing proof of this, I have sought, by the help of a kind of discipline of death (I can think of no other name for it), to infuse into the mind of an individual so affected a personal, an experiential appreciation, as it were, of the essential benevolence of death.

I have insisted, in the first place, that inasmuch as the loss of the sense of personality, of the ego, confers the chief terror on the thought of death, he may appreciably diminish that terror by thinking of sleep as death—not of death as sleep. By causing him to habituate himself to this idea by saying to himself when about to sleep, "I die now," I have sought, through the help of autosuggestion, to make him feel that he already knew the worst that death could inflict on him; that, in short, he had died, to all intents and purposes, every twenty-four hours. Further, I have endeavored to engender the conviction, by actual trial on himself, that unconsciousness is the greatest of all boons.

To achieve this, I have seen to it that during the day he was kept employed, mentally and physically, to the full limit of his capacity. At night, however, when overcome with weariness he betook himself to bed, an attendant awoke him whenever he fell asleep. In the morning, when very irritable and exhausted he demanded coffee, he was compelled to content himself with bread and a meager store of milk. Thereafter, he was still further tormented by drowsiness, but, despite his entreaties, he was not allowed to sleep all day. During the second night, however, about 11 o'clock, having declared that he "would rather sleep, even if he never woke up," than keep on with the experiment, he was allowed to become unconscious. One such experience as this does more to impress the mind with the benevolence of unconsciousness, whether of limited duration or not, than much fine-spun philosophy. By virtue of its experiential potency the reason concedes that, while sleep suffices to make good the curable shortcomings of the mental mechanism, death only is able to antidote its immedicable dilapidation.

A galling experience, then, of the pangs of a consciousness unduly prolonged is the most convincing testimony to the supreme benevolence of death.

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# RHEUMATISM AND OTHER AFFECTIONS OF THE JOINTS.

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To the question, "Have you ever had rheumatism?" the great majority of my adult dispensary patients have answered in the affirmative, but when questioned further as to the location and character of the trouble there were nearly as many answers as there were patients. In some cases the trouble was in the large joints, which were affected singly or multiply; in other cases it was limited to the small joints; again, it was in the muscles, in the nerves, in the bones, in the head, in the throat, in the stomach, in the uterus, or in the heart, for there is scarcely a part of the body which seems free from this omnipresent malady. Some of the attacks were acute, but more often they were chronic or recurrent. At times they were so severe as to confine the patients to bed, but more often they merely inconvenienced them at their work. Indeed, there seems to be only one symptom common to all cases, and that symptom is pain.

Is this pain in all cases rheumatic, as the patients suppose, or are there not a number of diseases which cause pain, and which, therefore, are considered to be rheumatic? Some of these troubles are at first glance seen to be due to other causes, such as syphilis, but how about the remainder, which are harder to separate? Shall we take the patient's diagnosis, or shall we investigate further? The only way to get at the real nature of the complaint is to find out the cause of the trouble, but this is especially difficult in these cases, and, in consequence, physicians have been forced to accept the patient's diagnosis, though they have been dissatisfied with it and with the consequent treatment.

This is no new trouble, for Haygarth said in 1805: "The term rheumatism has been applied without sufficient discrimination to a great variety of disorders, which, except pain, have few symptoms that connect them together." Indeed, it has only been in the last few years that any real advance has been made in this line.

Having grouped all these troubles together, we have naturally tried to find one causative agent for them all. The patient is pretty sure to attribute his rheumatism to taking cold, and in some respects he is right, for sudden changes in temperature and exposure to cold and wet certainly aggravate many of these affections, and must often be considered as predisposing factors, though it is doubtful if cold is ever the sole or even the chief cause of any one of these diseases. We do not know how it acts, but we have good reason to believe that no small part of the effect of cold is due to the decrease of the skin's action and the consequent increase of irritating substances in the body fluids.

When it was found that our old scapegoat "cold" could not bear all the responsibility for the so-called rheumatic diseases, a large part of the medical profession eagerly accepted Haig's plausible theories. These are based on the supposition that this class of disease, as well as many others, is dependent on faulty "proteid metabolism," which results in the formation of an excess of uric acid, the so-called lithemic condition. Haig, however, does not bring forward the experimental proof necessary to verify his statements, and other experimenters have absolutely failed to get his results, which was to be expected, when one considers the number of diseases the uric-acid theory is made to cover.

In a negative way Haig's work has been of the greatest value, as it has stimulated work in pathologic chemistry, more especially in regard to the group of diseases at present under discussion. The great fault with his work is that, instead of seeking for the true causes of disease, he has formulated a theory, and has tried to group many utterly diverse troubles in accordance with it, without first having obtained the necessary experimental proof. He is a very plausible writer, however, and as a result many patients have been unnecessarily starved, often to their great detriment, though others have doubtless been much benefited, as our people are unquestionably given to eating too heavily. Haig's star, however, is far past the meridian, as is shown by the following quotation from The Journal A. M. A.: "Haig, using methods which are known to be unreliable, secured data which can not be corroborated, and with these as a basis, followed out a marvelous train of logic to the ultimate conclusion that practically all disease is due to uric acid, and that a vegetable diet is a guarantee against the sufferings of mortal man."

Let us give up the idea of finding one cause for all these troubles and try to separate them, so that we can look at each disease by itself. This, however, will be no easy task, as our knowledge of the subject is still very incomplete. Nevertheless I am going to try to separate some of the diseases commonly grouped together under the term rheumatism, but it must be borne in mind that this is merely a tentative classification, which will of necessity be greatly modified as our knowledge of the subject increases.

### DISEASES OFTEN TREATED AS RHEUMATISM.

A. Diseases involving the joints.
  1. Acute articular rheumatism.
  2. Arthritis deformans.
  3. Gout.
  4. Specific or secondary arthritis.
    (*a*) Tubercular.
    (*b*) Gonorrheal.
    (*c*) Septic.
    (*d*) Following acute infectious diseases.
  5. Traumatic arthritis.
B. Diseases which do not involve the joints.
  1. Neuritis (neuralgia, myalgia).
  2. Periostitis, osteomyelitis, rachitis.
  3. Bursitis, tendo-synovitis, etc.
  4. Deformities (e. g., flatfoot).
  5. Referred pains.

### ACUTE ARTICULAR RHEUMATISM.

This is the true rheumatism, and is now generally looked on as an acute infectious disease, which is supposed to be the result of an infection by a specific microorganism. It is a general infection, affecting not only the larger joints, but other serous membranes, more especially the endocardium. It is accompanied by high fever and is characterized by severe pain and tenderness, and its tendency to jump from joint to joint. Like other acute infectious diseases, it has a tendency to spontaneous recovery, and apparently *does not run into* chronic rheumatism, the joints seeming to recover completely, though it often leaves behind it a weakened heart valve. This disease is not followed by immunity, but, on the contrary, seems to predispose to a second attack. The prognosis as to life is usually good. Uric acid certainly has nothing to do with this disease. There may be trouble in differentiating it from polyarticular gout, from acute arthritis deformans or from gonorrheal or tubercular arthritis, but it will be better to discuss this when the other diseases are treated.

### ARTHRITIS DEFORMANS.

This term has only recently come into general use in this country, though it is common enough abroad. Thus more than ten years ago Strümpell said: "The two diseases known as chronic articular rheumatism and arthritis deformans are considered together here, because it is impossible to draw a sharp distinction between them." At present the best authorities seem to think it wise to *abandon the term chronic articular rheumatism*, as this implies a chronic form of the acute disease, which, as we have just seen, does not become chronic. Arthritis deformans is probably of infectious origin, though it often appears to be connected with nervous disturbances and conditions which depress the general health. Some authors claim that it is of nervous origin, and that this, in turn, is dependent on a toxemia. There also seems to be an hereditary *lack of resistance to this disease.*

The pathologic findings speak for an inflammatory condition at the outset, with a secondary degeneration. There always seems to be changes in the cartilage of the joints, and later the bone may be involved, with considerable thickening and deformity, while it often produces hyperostoses, such as Heberton's nodes on the fingers. Atrophy of the muscles around the joints may be a striking feature.

The most marked features of this disease are a polyarthritis, which does not shift about, slight fever, and a rapid pulse. It is especially common in the small joints of the hands and feet, though it may affect any joint, and usually affects the same joints on both sides. When the vertebræ are involved there is a marked rigidity of the spine with pain, which is frequently called lumbago or sciatica. It occurs most often in women and in people past middle life, though it may occur in childhood. There is an acute form, which affects many joints simultaneously and which is apt to be taken for sub-acute rheumatism, but the chronic form is far more common. There is rarely, if ever, endocardial involvement. Yeo says that it differs from polyarticular gout in the absence of uratic deposits, and from rheumatism by the presence of structural lesions. The *x*-ray is of great value in diagnosing old cases.

### GOUT.

*Articular Gout.*—An attack of acute articular gout usually begins with an agonizing pain in the big toe, which is red, swollen and very tender. The symptoms generally subside during the day, to return again the next night. These attacks, as a rule, are preceded by indigestion, and are prone to occur at irregular intervals, sometimes involving other joints, until the joints may be permanently crippled by deposits of urates. In the chronic forms the feet are most often involved, and then the hands, but there may be concretions about the elbows, the knees and along the tendons, as well as tophi in the ears. These patients usually have chronic acid dyspepsia, and later develop arteriosclerosis. In such cases intercurrent attacks of acute polyarthritis may occur with a temperature from 101 to 102, though the patient may never have more than subacute attacks.

*Nonarticular Gout.*—A similar blood condition may also apparently produce arteriosclerotic and renal changes, as well as headaches, neuralgia and eczema, without involving the joints.

There is a marked hereditary tendency in gout, which is prone to appear in an adult man, "who has not lived wisely, but too well," more especially in beer drinkers, while it is often associated with lead intoxications.

This is the disease to which the uric-acid theory applies, if it applies to any, but it is strongly disputed here, though the controversy has not yet been settled. There is an increase of uric acid in the blood in acute attacks and a deposit of urate of sodium in the affected joints, still, according to Bouchard, "it has by no means been demonstrated that uric acid is the only or even the chief matter contaminating the fluids. The disease itself is not due to uricemia," for we have uricemia in other diseases (e. g., in leucemia) without gouty manifestations. Yeo believes gout to be a disorder of elimination, especially of hepatic elimination, which causes an increase of toxic substances in the body, these last being responsible for the symptoms.

We seldom have difficulty in diagnosing a typical attack of acute gout, but the more chronic polyarticular form is often hard to distinguish from arthritis deformans. Here we have to consider the history of the case, more especially of previous attacks and of the patient's habits, while the presence of tophi is diagnostic. Acute gout also responds quickly to colchicum, which does not help any of the other troubles.

### SPECIFIC OR SECONDARY ARTHRITIS.

There are a number of joint infections which are due to specific agents and which are rightly classed with other diseases, but which are often mistaken for rheumatism, and which will have to be mentioned here for the sake of diagnosis.

(*a*) *Tubercular Arthritis.*—The acute tubercular joint may well give rise to trouble in diagnosing it from acute articular rheumatism. McCrae thinks it best to regard all monarticular forms as tubercular or gonorrheal till other symptoms prove them to be rheumatic. The chronic form is a purely surgical trouble, and has long been recognized as something entirely distinct from rheumatism. Nevertheless it is still sometimes treated medicinally, this being especially true of hip-joint disease, which I have seen diagnosed and treated as "chronic rheumatism of the knee" to the permanent injury of the patient. It is well here to remember Dr. A. M. Phelps' rule, "Never treat rheumatism of the knee in a child without first examining the hip."

(*b*) *Gonorrheal Arthritis.*—We may have an arthritis immediately following a gonorrheal infection elsewhere, and gonococci have been found in such joints. In the acute form it usually involves only one joint, usually the knee. In the more chronic variety several joints are often affected, and here it may be mistaken for arthritis deformans, but an examination of the genitals with careful questioning is generally sufficient to make the diagnosis. The acute form must be differentiated from acute articular rheumatism, but the pain is not as a rule so severe, the fever not so high, and it does not tend to leave one joint and to appear in another. A gonorrheal septicemia with involvement of the heart and several joints is very difficult to distinguish from acute rheumatism.

(*c*) *Septic Arthritis.*—This may occur in the course of pyemias, most often in puerperal fever. The inflammation is accompanied by pus formation, and the diagnosis is usually easily made. The monarticular acute arthritis of infants, which goes on to pus formation, seems to belong to this class. Under this head it is better to mention joints involved in the infection of osteomyelitis, though this will be referred to later.

(*d*) *Accompanying Acute Infectious Diseases.*—In scarlet fever, smallpox, dysentery, pneumonia, cerebrospinal meningitis and dengue there may be joint involvement, which is hard to distinguish from acute articular rheumatism. These may go on to pus formation, and are now generally attributed to the causative factors of the accompanying disease.

### TRAUMATIC ARTHRITIS.

A swollen joint which is the direct result of injury is seldom attributed to rheumatism, but it is well to always bear this possible cause in mind.

### NEURITIS.

Myalgia (muscular rheumatism), neuralgia, and certain forms of neuritis (such as the so-called sciatic rheumatism) are at present so hopelessly confused that it is very hard to unravel the tangle. They are all, however, often classed and treated as rheumatism, though none of them are joint affections. It will be well first to consider the meaning of the terms. Myalgia means "muscle pain"; neuralgia, "nerve pain," both being mere symptoms, while neuritis is the only real disease of the three. The "muscle pain" may be from injury to the muscle itself, as in severe strain, but it is apparently more often of nervous origin or a neuralgia. The "nerve pain" may be from a more or less marked neuritis or may be referred from some distant organ. Now a neuritis may occur from injury or from pressure, as in some cases of sciatica, besides which any irritating substance in the body fluids may affect the nerves and cause more or less inflammation, as is shown in neuritis from alcohol, lead and arsenic, or from the toxins of syphilis, diphtheria and other infectious diseases, or from the auto-intoxications of diabetes, nephritis, intestinal disturbances, and those faulty eliminations, which produce a gouty condition. These substances may produce a transient irritation, which may be termed neuralgia or myalgia, or a more permanent inflammation, which may be called neuritis, but the difference between the two seems to be only one of degree. When a nerve once has been affected it is left in a more sensitive condition, and small things, such as changes in temperature, are enough to produce a fresh attack. A faulty blood supply, either a general or a local anemia, is a predisposing cause of neuritis, while a lack of nerve control will heighten the neuralgic attack.

### PERIOSTITIS, OSTEOMYELITIS, RACHITIS.

Various diseases of the bones are at times mistaken for rheumatism, though this is especially the case when the joints are involved secondarily. Thus, acute osteomyelitis may be mistaken for acute articular rheumatism, while the chronic tubercular form may be treated for chronic rheumatism. Periostitis, even of syphilitic origin, is often considered to be rheumatic by the patient, and I have known it to be treated as such. The tender and enlarged epiphyses of rachitis also in a few cases have been ascribed to rheumatism. It is needless to add that none of these troubles are rheumatic, and that rheumatic treatment is worse than useless.

### BURSITIS AND TENDOSYNOVITIS.

Inflammation of the tendon sheaths near the joints, or even more superficial inflammations, more especially bursitis, may be mistaken for rheumatism, though, naturally, they have nothing in common with this disease.

### DEFORMITIES.

Certain deformities, especially "flatfoot," must be mentioned, as I have heard of a number of such cases being attributed to uric acid and dieted.

### REFERRED OR REFLEX PAINS.

These pains are all neuralgic (i. e., nerve pains), and are referred to parts at some distance from the seat of the trouble. They may be due to disease of the spinal cord, as in locomotor ataxia, and in acute poliomyelitis, or they may be referred from the viscera. Thus, there may be pain in the right shoulder and back from the liver; pain in the left shoulder from the heart, the colon or the diaphragm; pain around the hip from the ovaries, the kidneys or the ureters. While it should never be forgotten that pain near the knee may be referred from the hip. All these have been treated as rheumatism, and naturally such treatment has been of little avail.

### "CHRONIC RHEUMATISM."

I know it is customary to give chronic rheumatism as a distinct disease, but it is getting to be generally felt that there should be no such head. A large number of the cases usually called chronic articular rheumatism are more or less marked cases of arthritis deformans, while the rest are usually found to be due to gout or to some specific variety such as gonorrheal arthritis. Acute articular rheumatism, the real rheumatism as we have seen, does not become chronic, and consequently a chronic joint affection should not be called rheumatism, as this leads to needless confusion. The so-called chronic muscular rheumatism is not the result of real rheumatism, but, as we have seen, in all probability is an affection of the sensory nerves of the muscles, though it is sometimes superinduced by a gouty toxemia.

### TREATMENT.

*Acute Articular Rheumatism.*—This is an acute febrile disease, and requires rest in bed and a skimmed milk diet, with local applications of heat or cold to the affected joints. The salicylates are indicated here in large doses, though Osler says they are no longer to be considered as specific in this disease. It may be necessary to give morphin or the coaltar products to quiet the pain.

*Arthritis Deformans.*—Here an entirely different line of treatment must be followed. Rest in bed is seldom necessary, though the joints should not be over-exercised during the more acute stage of the disease. The diet should be as liberal as can be digested, and a strict anti-uric-acid diet does great harm. . Tonic treatment should be instituted, the syrup of the iodid of iron being especially useful. Dry hot air and galvanism should be used on the affected joints and later on massage and passive movements. If ankylosis has occurred, good results can not be expected, but in earlier cases the treatment just laid down will give good chances of success if it is persisted in.

*Gout.*—The acute attacks call for rest in bed, free movements of the bowels, a milk diet, large quantities of water, colchicum and possibly morphin, when the pain can not be endured. Hot lead and opium wash locally is often very soothing. The salicylates are generally said to be contraindicated. In the more chronic form or between the attacks insist on a light general diet, regulated to suit the digestion of the patient, iodid of potash and plenty of water. Also see that the skin, kidneys and bowels are doing their work, and that the patient is taking regular moderate exercise.

*Tubercular, Gonorrheal and Septic Arthritis.*—These cases all call for absolute rest, even immobilization of the joint and an alleviation of the pain. The causative trouble (the gonorrhea or the local infection), must be treated. Surgical interference nevertheless is often required, and the advice of a competent surgeon should be sought early. There are no specific remedies for these troubles, and the most to be expected from drugs is the alleviation of pain, but local applications of heat or cold are commonly more useful than any drug.

*Non-articular Affections.*—Though we are really only considering joint affections, I think it wise to add a word or two on the treatment of those forms of neuritis which we commonly term muscular rheumatism. The acute form calls for rest and relaxation of the affected nerves and muscles, together with an alleviation of pain. This is obtained by rest in bed, with heat, gentle massage, galvanism or acupuncture, if there is spasmodic contracture of the muscles, while the pain may be controlled by the salicylates or by the coaltar products. In the more chronic or recurrent cases the cause of the trouble must be searched for. If it is due to a toxemia of any kind the cause of the toxemia must be removed and the irritating substances must be eliminated by promoting a freer action of the skin, bowels and kidneys. If it is due to an anemia, that must be remedied, and as one attack makes the nerves more sensitive, such a patient should be made to wear warm clothing. Do not diet the patient unless the trouble seems to be due to an intestinal or gouty toxemia.

### CONCLUSION.

Finally, do not put every patient who has pain in or around the joints on the salicylates, or on "a lithemic diet," but look for the true cause of the trouble, for there are different affections of the joints as well as different affections of the digestion. The results of this treatment have been notoriously poor, as was to be expected when we consider what a small percentage of the cases it really suited. Let us, therefore, sift out our cases and try to treat them rationally, and so remove one of the so-called reproaches of modern medicine.

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# Special Article

## IMMUNITY.

### CHAPTER XIV—Concluded.

**Bacterial Receptors.**

All bacteria which stimulate to the formation of bactericidal serums do so because of certain receptors which they possess. These are, of course, analogous to the receptors of erythrocytes which cause the production of the hemolytic bodies in serum. They have, in addition, many other receptors, some of which cause the development of agglutinins. In the latter instance we speak of the agglutinogenic receptors of the cells, but there is no name of equal convenience which is used to designate the receptors which stimulate to the formation of amboceptors. No two micro-organisms contain an identical receptor apparatus; if the contrary were the case their antiserums would coincide in their bactericidal action. Therefore, the sessile amboceptors with which they unite during immunization differ correspondingly in their cytophilous haptophores. The cytophilous haptophore of the typhoid amboceptor finds its specific counterpart in the typhoid bacillus, and finding no such counterpart in the vibrio of cholera, the latter can not be sensitized by the antityphoid serum; on this fact depends the specificity of the serum. This conception does not interfere with the explanation of the group reaction among bactericidal serums on a similar basis, for it is conceivable that the colon bacillus, for example, has, in addition to those receptors which characterize the organism, a small percentage of receptors which are identical with those characterizing the typhoid bacillus. In accordance with this possibility an antityphoid serum may well, as it does, show some increased bactericidal power for closely related organisms. Hence the explanation of group bacteriolysis is identical with that of group agglutination.

There is a wide difference of opinion regarding the unity of

**Multiplicity of Complements.**

complement, or alexin, its synonym. Bordet and his followers stand for the unity of the alexins, and their position rests on the fact that a given normal serum may be used to activate many different amboceptors. We should appreciate that this phenomenon might depend on the broad range of action of a single complement, or on the presence of different complements each being specific for a particular amboceptor. Ehrlich and his school take the latter view and have actually demonstrated a multiplicity of complements in a few instances. Ehrlich and Sachs treated fresh normal serums (complement) in various ways, such as digestion with papain, partial destruction with alkalies, heat, etc., and were able by these methods to destroy the complement for one kind of amboceptor, while the serum still retained its power for activating other amboceptors. Accordingly, it seems clear that the ability of a normal serum to activate a given amboceptor depends not only on the presence of complement in a general sense, but on the presence of a suitable complement, i. e., one the haptophore of which corresponds to the complementophilous haptophore of the amboceptor. This point is of great importance in reference to the treatment of infectious diseases with antibacterial serums, for the efficacy of the serum would seem to depend on the introduction of suitable complement in conjunction with the amboceptors, or on the existence of such complement in the body of the patient.

**Anticomplements.**

Added proof of the multiplicity of complements has been obtained by experiments with anticomplements. As stated, the latter are obtained by immunization of suitable animals with normal or immune serums which contain complement or complementoid; when they are mixed with the homologous complements the haptophores of the latter are bound by means of the haptophores of the anticomplements. The evidence of this union lies in the fact that a complement which has been treated with its specific anticomplement is no longer able to activate the appropriate amboceptor. With properly selected serums, it may be shown that a given anticomplement will neutralize a complement which is specific for one amboceptor, but will have no effect on another complement which activates a different amboceptor. Hence, complements differ at least in this respect that not all have identical haptophores. Immunization with leucocytes, cells which contain complement, also causes the formation of anticomplement. Both natural and acquired antibacterial immunity may be lowered by the injection of anticomplement which is homologous to the complement of the animal.

**Antiamboceptors.**

If one immunizes with an immune serum the product is spoken of in a general way as an anti-immune serum. The latter contains, as stated, anticomplement; through the agency of this substance the antiserum antagonizes the action of the serum which was used for the immunization. Inasmuch, however, as the immune serum contains amboceptors also the antagonistic action of the antiserum may depend in part on the presence of antiamboceptors. Differentiation between the action of anticomplement and antiamboceptor is difficult, but it may be accomplished in certain cases by appropriate binding experiments. Serum 1, an inactive hemolytic serum, i. e., a solution of amboceptors and complementoid, is treated with serum 2. Serum 2 has been obtained by immunization of an animal with serum 1, and contains anticomplement and possibly antiamboceptors. If serum 2 contains only anticomplement, it will have no effect on the amboceptors of serum 1, when the two are mixed. The amboceptors are free to sensitize corpuscles which may be added, and when sensitized they undergo hemolysis in the presence of complement. If, however, serum 2 contains antiamboceptors, either the cytophilous or the complementophilous haptophore of the amboceptor will be bound. In either case corpuscles which are added subsequently would not appear as sensitized, for if the cytophilous haptophore had been bound by antiamboceptor union between cell receptor and amboceptor could not occur; and if the complementophilous haptophore had been preoccupied complement would have no effect even if the amboceptors had united with the cells by their unbound cytophilous haptophores. Ehrlich and Morgenroth demonstrated such antiamboceptors for certain hemolytic serums, and it is their belief that they combine with the cytophilous rather than with the complementophilous haptophore of the amboceptor. Pfeiffer also reports the demonstration of antiamboceptors for the specific amboceptors of anticholera serum.

**Danger of Formation of Antiamboceptors.**

The possibility of antiamboceptor formation is one of practical bearing, in view of the fact that the prolonged treatment of a patient with a bactericidal serum may result in the development of such antibodies; if present in sufficient amount they would combine with new amboceptors which were injected and thus deviate the latter from the bacteria.

**Deviation of Complement and Its Theoretical Danger.**

A phenomenon equally of theoretical and practical importance has to do with the so-called deviation (*Ablenkung*) of complement. It has been found that the action of a bactericidal or hemolytic serum is lessened, if a great excess of amboceptors over complement is added. To explain this fact Neisser and Wechsberg have supposed that when so many amboceptors are present that all can not be taken up by the cells, those which remain free are able to combine with some of the complement which is present and thus prevent the accession of the latter to the sensitized cells; that is to say, the complement is deviated from its natural course of action. This amounts to a protection of the sensitized cells from the action of the complement. The phenomenon led Wechsberg to suggest that in the therapeutic administration of bactericidal serums it may be possible to give too much of the serum. Although deviation of complement is a demonstrated fact, its importance in serum therapy is perhaps not definitely settled.

**Hemolytic Amboceptors of Venom.**

It is of interest that amboceptors are widely distributed in the animal kingdom, and that in certain instances they may be demonstrated in the secretions. It has long been known that the venoms of serpents owe a great deal of their toxicity to their power of destroying red blood cells. A given venom may contain several toxic properties, and the poisons of different serpents by no means coincide in their various properties. Cobra venom has at least two distinct toxins, one for the nervous tissue and one which dissolves erythrocytes, the neurotoxin having the greater pathogenic significance; it, moreover, agglutinates red blood corpuscles. The venom of the rattlesnake, on the other hand, is neurotoxic to a less degree, but has a pronounced influence in causing capillary hemorrhages. The latter power Flexner ascribes to a toxin for endothelial cells, which he calls hemorrhagin. Through the works both of Kyes and of Flexner and Noguchi, facts were learned concerning the hemolytic toxin of cobra venom, which may be of great importance in problems of general immunity. It seems that the hemolysin of venom is an amboceptor rather than a toxin of the usual nature, and that the aid of complement is necessary for its toxic action. Strange as it may seem, the venom itself contains only the amboceptors, so that the toxicity of the substance depends on its being complemented after it is introduced into the body. The possession of suitable complement, therefore, is a source of danger in this instance rather than a means of protection for the individual. One may very well suspect that a similar relationship is possible in connection with other substances which are as yet unknown.

**Endocomplement.**

A fact of additional importance is that the amboceptor finds suitable complement not only in the serum of the animal, but it may also be activated by a complement which the erythrocytes themselves contain. Kyes speaks of the latter as endocomplement, i. e., endocellular complement.

**Lecithin.**

In attempting to discover the nature of the complement which is present in the erythrocytes, various substances existing normally in the red cells, as cholesterin and lecithin, were obtained in pure form and their activating power for the cobra amboceptors was tested in reagent-glass experiments. From this work it was learned that lecithin, a definitely known chemical substance, has the activating power, and it was, therefore, assumed that the endocomplement of erythrocytes is nothing more or less than lecithin. All erythrocytes contain lecithin, yet not all are equally susceptible to the action of venom in the absence of serum complement; that is to say, endocellular lecithin does not act as complement with equal readiness in all cases. In order to explain this variation it was necessary to assume that the lecithin in the cells of one animal may be more available as complement because it is bound to other cell constituents only in a very loose way, whereas in more resistant cells the union is of a firmer nature.

**Cobra-lecithid.**

The relationship between cobra amboceptors and lecithin seems to be a very definite one, for Kyes was able to obtain a union of the two without the intervention of erythrocytes. The resulting substance, the cobra-lecithid of Kyes, is a completed toxin and needs no further activation. We have yet to learn of the true nature of this new compound, the discovery of which seemed at first to augur a more intimate chemical knowledge of the substances which are concerned in immunity.

**Hemolysis by the Combined Action of Colloids.**

Lecithin is a colloid, and in this connection it is most interesting to note that it may be used in combination with still another colloid in such manner that the hemolysis which they cause is analogous to that produced by the action of hemolytic amboceptor and complement. Landsteiner tried the effect of colloidal silicic acid on erythrocytes which were entirely freed from serum, with the result that the corpuscles were agglutinated under its influence. It developed further, however, that colloidal silicic acid not only acts as an agglutinin, but also simulates a hemolytic amboceptor, and in the latter capacity it may be activated either by the ordinary complement of serum or by lecithin. Hence, we have here an instance of the entire cytolytic action being performed by two known chemicals, which in their action appear to be analogous to amboceptors and complements. Yet even the action of these substances is obscure, for although the chemical formulæ of silicic acid and lecithin are sufficiently well known, the explanation of their activity as colloids is equally obscure with that of the albuminous substances.

**Neutralization of Complement by Salts.**

Another recent discovery which tends to bring the immune substances into closer touch with pure chemistry is that of Hektoen concerning the ability of certain salts (calcium chlorid, barium chlorid, etc.), to combine with complement in such a way that the latter loses its activating and combining function in relation to amboceptors. This was mentioned incidentally under the subject of antitoxins. The activity of the complement is again restored if the inhibiting salts are precipitated by suitable chemicals. The salts are used in such dilutions that they are largely ionized, and Manwaring believes their inhibiting action is due to the formation of compounds of the positive ions with the complement, resulting in such substances as Ca-complement, Ba-complement, etc. When the precipitating chemicals are added the ions are freed from this combination, as a result of which the complement recovers its activating properties. It has not as yet been determined whether variations in the salts in the fluids of the body cause changes in resistance by their action on native complements.

*(To be continued.)*

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## Clinical Reports

### A CASE OF EXOPHTHALMIC GOITER,

### WITH ACUTE SYMPTOMS AND DEATH PROBABLY CAUSED BY THE USE OF THYROID EXTRACT.

M. V. BALL, M.D.

WARREN, PA.

*Patient.*—M. A., female, aged 24, no occupation; tall, blonde, slender. Family history is unknown, as she was taken from an orphanage when young.

*History.*—She has never had any serious illness and has always been very vivacious in temperament. She has had a small goiter for three or four years and a rapid heart, with some throbbing at the neck. She has been taking 5-grain tablets of thyroid extract for over a year to reduce the thyroid swelling. She has not been obliged to consult a physician in the past two years. Her friends noted a tremor about the hands last summer. Her eyes were not prominent, but sometimes there was a noticeable stare, and she was in the habit of rolling them so as to make the sclera appear prominent.

*Present Illness.*—On Oct. 11, 1904, while on a visit to a neighboring city, she was affected with vomiting, diarrhea and headache and was indisposed for a week. Ever since that time she has had a poor appetite, but complained very little until about December 1, when she seemed excitable and confused, complained of severe headache and was unable to retain food. She was very restless and emotional, was thought to be hysterical. She improved, however, and toward the middle of the week was up and around, though her stomach was still irritable and she was unable to sleep. A physician was called, but no mention was made of the existence of palpitation and tremor previous to the present indisposition, and her symptoms were attributed to hysteria. She had no fever, a slight purpuric eruption was noticed about the knees and arms, and it was attributed to the friction of the bedclothes, as she was extremely restless while in bed. There was no pain. As she did not improve, her physicians had her sent to the hospital because of the extreme restlessness that no drugs seemed to relieve, and the very rapid action of the heart and a gradual increase of the bodily exhaustion.

*Condition in Hospital.*—On admission to the hospital, December 14, 9 p. m., the temperature was 99 in the axilla, pulse 142, respiration 34; December 15, 10 p. m., temperature 99, pulse 150, respiration 32; December 16, 6 a. m., temperature 98.2, pulse 140; 6 p. m., temperature 99, pulse 154, respiration 26. She slept a few hours and was slightly delirious when awake. She was quieter under aconite and sedatives.

December 17, 6 a. m., asleep, pulse 150, respiration 24. She slept a number of hours. 10 a. m., temperature 96.2, pulse 132, respiration 24. She retained nourishment well and slept several hours, but the conjunctiva became very highly inflamed and a muco-purulent discharge appeared. Mind is clear. Urine examined showed specific gravity 1018, acid reaction; no albumin or sugar. At 6 p. m. the temperature in the axilla was 98, pulse 134, respiration 24.

December 18, 2 a. m., temperature in axilla 98.2, pulse 140, respiration 26, eyes very painful; 8 a. m., temperature in axilla 98.1, pulse 136, respiration 28; 2 p. m., temperature in axilla 97.2, pulse 140, respiration 32.

She had several thin, watery and involuntary bowel movements during the afternoon. 6 p. m., temperature in axilla 98.4, pulse 130, respiration 32; 10 p. m., temperature in axilla 98, pulse 140, respiration 26. The conjunctiva now became intensely congested and there was a profuse muco-purulent discharge.

*Examination.*—I was called in consultation and examined the patient at 10 p. m., December 18. The corneal surface was abraded. I had difficulty in getting a good view of the eye-ground because of the restlessness of the patient, but the fundus appeared to be fairly clear. A culture of the discharge was made which next morning showed a capsulated diplococcus (pneumococcus). I noted the goiter, but found no undue prominence of the eyes. The patient was much emaciated about the face, tossed from side to side and moaned. She said her eyes pained; she had difficulty in swallowing; the tongue was glazed and very dry; the face flushed and the limbs cold and covered with purpuric blotches. Her mind was confused and somewhat drowsy. The diagnosis of exophthalmic goiter was suggested next morning to the physicians in attendance, and on inquiry among her friends the history as outlined above was obtained, thus substantiating the diagnosis. These important elements in the case, the previous history of tachycardia and goiter were unknown to her physicians or to me, and my diagnosis was based on the rapid action of the heart, the goiter, the absence of fever and absence of marked lesion of the heart or its membranes.

*Termination of the Disease.*—Unfortunately, this knowledge was derived too late to be of any service, for during the night the temperature began to rise and the patient became stuporous and passed away in coma at 2:30 p. m., temperature having reached 106, pulse 200 and respirations 70; the acute symptoms had lasted less than four weeks.

*Autopsy.*—An autopsy was held in the evening. The meninges were slightly congested, but the brain showed no gross lesion and appeared normal in every particular; the thyroid gland was uniformly enlarged, soft in consistence, normal in color. The pericardial sac was empty and the pericardium normal in appearance save for a slight roughening on the visceral portion near the base of the heart and posteriorly. The ventricular walls were hypertrophied, the valves all perfect and smooth, the heart itself not enlarged. The spleen was normal in size and texture. There was no evidence of peritoneal involvement, and the other organs were not examined. From the negative findings in the heart and brain the diagnosis of exophthalmic goiter was confirmed.

*Remarks.*—Such a rapid course and fatal termination is mentioned as occurring in several cases by Osler, Gowers and others. It is likely that the thyroid extract which she had taken in tablet form for over a year and which is now conceded to be contraindicated in this condition, helped to bring on the acute thyroidism. That the disease had existed for upward of two years is evident from the observations made by her friends. They remarked that they noticed the heart beating through the clothes, and the vessels in the neck throbbing, and that her hands trembled, and when they urged her to seek medical advice she replied that the condition was an old one and was not worth considering. The exophthalmus was the only classic symptom not well marked, but her appearance as her friends now recall it was at times staring and fixed.

The peculiar and severe conjunctivitis which developed shortly before her death was not due to the exophthalmus as is the case in the more pronounced types. It may have been due to traumatism, but Ramsay[1] mentions increased lachrymation, acute pain and rapid ulceration of the cornea as sometimes occurring in this malady without extreme exophthalmus, and he is inclined to attribute these symptoms to an affection of the fifth nerve through its close connection with the sympathetic, a form of neuroparalytic ophthalmia. The purpuric eruption about the joints was probably due to disturbance of the vasomotor apparatus since various skin eruptions have at times been observed in this disease. There was no edema at any time or pain about the joints. The vomiting and diarrhea which seemed to accompany the illness is mentioned by many writers. In two other cases which I have seen the patients were women and under 30, which is in accordance with Eshner's statistics, who found the disease four and one-half times more frequent in women than in men and most common in early adult life.

## HAS TYPHOID FEVER INFECTION ANY INFLUENCE ON THE BACILLI OF TUBERCULOSIS?

JOHN A. WYETH, M.D.
NEW YORK CITY.

I have heard recently of two cases of tuberculosis, as diagnosticated, which have been either cured or favorably affected as a result of typhoid infection. I submit them through THE JOURNAL to the profession for what they may be worth. I am indebted to Dr. Francis W. Gallagher of El Paso, Texas, for the notes, and I refer all investigators to him for further inquiry. I have observed that patients are, as a rule, in better health after typhoid fever than before. May it not be due to the fact that the typhoid bacillus has killed all the other more or less pathogenic organisms which occupied the body? Is there not a hint here regarding the possibility of immunity from that fearful scourge, tuberculosis?

CASE 1.—Mr. J. C. W. came from Wisconsin to El Paso in September, 1899. From this time until the middle of November, 1900, he lived in a tent under medical supervision and good hygienic surroundings. During this period he had afternoon temperatures and during the early months it reached 102 F. Physical examination Dec. 21, 1899, revealed on the right side from apex to nipple line abundant crepitant râles, dullness on same side and progressively more marked from apex to lower margin, and on the left side exaggerated and roughened respiratory murmurs with cog-wheel inspiration. There were no râles on this side. Tubercle bacilli were present. In the middle of November, 1900, he contracted typhoid fever and was removed to the Hotel Dieu and was there confined to bed until the middle of January, 1901. Convalescence was uneventful. Jan. 22, 1905, there was no cough, no expectoration, weight 145 pounds. This is as much as he ever weighed when in the best of health. He is constantly occupied as part proprietor and manager of a large newspaper plant.

CASE 2.—Mr. O. C. P. had a pulmonary hemorrhage while at college in January, 1901, and came to El Paso in May of that year. He lived in a tent from this time until September 1 following. During this time he had daily afternoon temperatures of 101 F. and over. Physical examination, May 3, 1901, showed a small cavity at the right apex; at left apex, prolonged expiration; over both lungs, vesicular murmur much diminished. Tubercle bacilli were present. He was removed to the Hotel Dieu, Aug. 31, 1901, with typhoid fever and was there confined to bed until October 12. Convalescence was uneventful. In January, 1905, he was in the City of Mexico. Dr. Gallagher writes that he had not heard from him in several months and has no doubt that he would have heard if he were not well. He has been working at railroad office work since the spring of 1902. He has increased in weight to beyond the normal average before his illness. He has no cough and no expectoration.

## A CASE OF VOLUNTARY IRIS.

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KANSAS CITY, MO.

I am indebted to my colleague, Dr. Guy H. Black, Madison, Kan., for the facts in this case. This phenomenon is very rare and seems to be generally unknown, as it is not mentioned in the text-books on ophthalmology to which I have had access. In Landois' physiology it is stated that Bechterew had observed a case of unilateral voluntary control of the iris.

The present example is one of bilateral voluntary iris which occurred in a married woman. It was first observed at the age of 9 years. Attention was drawn to the phenomenon at that time by the ability which the child then developed, of rotating the eyeballs in different directions independently of each other. From that time on it was a matter of fact established by almost daily demonstration, and observed by the various members of the family and their friends, that the iris of either eye could be dilated at will to very near the disappearing point. Vigorous exercise of the irides under the control of the will in this anomalous way was accompanied by some aching of the eyeballs. When menstruation was established, at the age of 12, the pupil of the right eye became dilated to twice the size of the left. Later the normal equal size was regained. The color of the irides is brown. No complaint of double vision has been made, and there have been no symptoms of asthenopia, although she has made a good record as a bright student and has gained an enviable reputation as a musician. The power to simulate convergent strabismus which is possessed by some individuals is possessed by this woman to a very marked degree. The patient's mother was American-born of English parents. Her father's father was a Spaniard and her father's mother was a gypsy.

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[1] External Diseases of the Eye.

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## THE CURABILITY OF PARESIS.

Paretic dementia, or as it is more commonly called, paresis, is usually considered one of the opprobria of the medical profession, a disease which it is beyond the power of the physician to cure. It is true that now and then a recovery is reported, but the account is almost invariably received with skepticism and reports of such cases are hardly considered creditable to the physician making them. All the possibilities of error, faulty diagnosis, lack of continued observation, and mistaking of remission for recovery, are brought forward and one or the other ascribed as the true fact in the case.

In this issue of The Journal,[1] however, one of our distinguished neurologists, whose opportunities for observation can not well be questioned, comes forward with what is to him convincing evidence that paresis in its very earliest stages is a disorder that can be arrested or cured. His cases are perhaps less convincing than his arguments, for they are, like all other clinical histories, open to possibilities of interpretation that will not absolutely support his theory. Nevertheless, accepted according to the ordinary rules of evidence, they are not to be summarily rejected and, while the periods of their observation are not perhaps absolutely sufficient to exclude all other possibilities, it seems possible, if not indeed probable, that some of them at least would, but for the treatment received, have developed into characteristic paresis, and it is, moreover, an assumption to say that the apparent recovery is not a lasting one. Time only will determine that point. It is, moreover, in the experience of many alienists that a case diagnosed with every apparent probability of correctness has occasionally turned out something else or has made an unexpected recovery. In such cases it is usual to assume that an incorrect diagnosis has been made, but it is hard to say why it might not have been just as legitimate, in some of these cases at least, to count them as genuine recoveries from this formidable disease. If paresis is a strictly-defined, unvarying, pathologic entity and we should define it only from this particular point of view, then the diagnosis could be confirmed only by an autopsy, for it is a generally recognized fact that the clinical symptoms of the disorder may exist with various pathologic conditions and the question as to what are the first pathologic changes is by no means fully settled. The distinction between the pseudoparesis of brain syphilis and true incipient paresis is a rather arbitrary one, the clinical criteria being inconclusive. Pathologically, the distinction is clear. There should be no confusion as to the diseases, but there may be in the recognition.[1] Moreover, as Dr. Dana says, we may have the degenerative conditions of paresis existing at the same time, pathologically demonstrated, with those of cerebral syphilis. Paresis is a consequence of earlier syphilis in nearly every case, but no one can say exactly how much time must elapse between the cause and the late result. There is also, as he says, no *a priori* impossibility of the arrest of paresis in its early stages, judging by the analogy of our experience of other degenerative changes in the nervous system and elsewhere. How many cases of real recovery of paresis have been masked by the assumption of false diagnosis no one can say, but many asylum physicians of long experience have knowledge of such possibilities.

In spite of the general skeptical and critical tone of the discussion of Dr. Dana's paper, it is noticeable that few if any of those who took part ventured to assert the absolute impossibility of recoveries of the disease in its earlier stages. If Dr. Dana's views are correct, the importance is emphasized of an early diagnosis and treatment, or of at least tentative treatment, even in cases in which such symptoms as the Argyll-Robertson pupil or convulsions indicate decided degenerative changes. We are very far from having reached the last word as to the nature and the curability of paretic-dementia.

## THE ULTRAMICROSCOPE AGAIN.

Approximately two years ago the apparatus which has come to be generally known as the ultramicroscope was first described by Siedentopf and Zigmondy. Since then a number of contributions have been made relating to the application of this instrument in physico-chemical and biologic fields. While so far no very remarkable discoveries have been made, yet it may be stated that the instrument has found a definite place in chemical and biologic work and its field of usefulness is becoming more and more clearly defined and extended.

In bacteriology we should expect it to serve a valuable purpose in the study of those diseases which we now know are caused by a virus—presumably an organism—that will pass through a porcelain filter and therefore can not be seen by the aid of our ordinary microscopes. Rinderpest, foot and mouth disease, peripneumonia and probably also hog cholera and hydrophobia may be mentioned as diseases of this character. With the ultramicroscope it is very difficult or perhaps impossible to differentiate non-motile organisms from colloidal particles present in body fluids or media, but if perchance the causative organism in such diseases as the above mentioned were motile or passed through a motile stage, as may occur, especially in protozoa, they might readily be detected with this apparatus.

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[1] See page 1413.

Already motile bacteria have been seen in filtered putrefying fluids in which no evidence of organic life otherwise could be detected, and, also, it has been reported that peculiar ultramicroscopic bodies have been seen in fluids from animals suffering with foot and mouth disease. The organism of peripneumonia may readily be seen with the ultra-apparatus, but it may also be seen, if properly stained, with a very high power of an ordinary microscope, though it is so small that little can be made out concerning its morphology.

Recently, Siebert,[1] in Behring's Laboratory, has obtained some excellent ultramicroscopic photographs of various bacteria, both stained and unstained, which bring out certain features of internal structure, branching, etc., very well.

In the field of chemistry, observations have been limited largely to colloidal solutions. Statements in text-books concerning the invisibility of colloidal particles will have to be changed, for in many of both the inorganic and the organic colloids, myriads of minute particles in rapid oscillatory motion may be seen with the greatest ease, and their behavior studied under the influence of the electric current and enzymes; also such phenomena as precipitation, coagulation and agglutination may be observed.

According to v. Behring,[2] it is by far the most delicate test known for albumin. He has been able to detect as little as one ten-millionth part of a gram of albumin in a cubic centimeter of fluid, and considers it possible to use the ultramicroscope for both qualitative and quantitative albumin determination in urine, comparing it to the use of the polariscope for sugar determinations.

Michaelis[3] does not believe that it can be used for quantitative determinations of albumin because part of the albumin is in complete solution and in this condition can not be seen with the ultramicroscope. He gives a very interesting classification of stains based on their appearance in solution with the ultramicroscope. Three classes are distinguished. The first class is perfectly homogeneous at all dilutions and includes among others eosin, methylene blue, thionin and toluidin blue. At high dilutions, some of these are highly fluorescent. The second class exists in two phases—one completely soluble and therefore homogeneous, and the other consisting of visible particles. In this group are fuchsin, methyl violet, neutral red and picric acid. In the third class are included those dyes which resemble metallic colloidal solutions in that even in the highest dilution they present visible particles and do not show any homogeneous solution of the dye. Anilin blue, indulin and violet black belong here. Dyes of this group stain more diffusely and also very intensely. Fuchsin may be changed from the second to the third group by adding anilin and similar substances, as is done in staining for tubercle bacilli, thus becoming a much more intense stain.

Gruzewska and Biltz[4] have shown that glycogen in water is in reality a colloidal solution, the size of the particles changing with the dilution, and also that the precipitation of glycogen by reagents advances continuously according to the concentration of the precipitating solution.

The ultramicroscopes at present on the market are large and expensive instruments, and therefore they will find their way slowly into the laboratories of the country, but that the apparatus has a definite place in science and is of distinct service in certain fields there can be no doubt.

## TRUTH AND POETRY CONCERNING URIC ACID.

### XVI.

Many attempts have been made to explain the two chief symptoms of gout, the occurrence of gouty deposits or tophi, on the one hand, and the origin of the acute gouty inflammation or paroxysm on the other.

The tophi, which usually develop slowly and painlessly in the skin or in fibrocartilage, consist chemically chiefly of mononatrium urate with some admixture of monocalcium urate (Ebstein and Sprague.[1]) The anatomy of the nodule has been carefully studied (Riehl,[2] Freudweiler[3]). Along with the uratic deposit in the center there is necrosis; this is surrounded by a connective-tissue capsule in which "foreign-body" giant cells may occur; accumulations of lymphoid cells are met with about the adjoining vessels; doubly refractive granules may be seen inside the giant cells; a few crystals are present in the uninjured tissue at the periphery of the nodule. Precisely similar nodules can be produced experimentally by injection of mononatrium urate (Freudweiler), especially if alcohol be given at the same time (His, Jr.[4]) The nodule is not due to the mechanical action of the urate alone, but the urate, in addition, has a specific effect. The immediate cause of the deposit has not yet been made out, though hypotheses are rife regarding it.

The acute gouty inflammation has been ascribed by many to deposits of uric acid in the joint, but others assert that the acute attack may occur in the absence of deposits in or about the joint, and among these is Ebstein, who holds that the acute attack is due to stasis of urates in solution. Virchow pointed out that when deposits occur in the joints they are in the cartilage, while the inflammation involves the synovial membrane, not the cartilage. Some even deny that the joint is mainly involved, placing the irritative process in the skin (Pfeiffer, Aronsohn), in the lymph vessels (Mordhorst) or even in the peripheral nerves (Wade, Ewart). The inconstancy of the deposits is the point which is disturbing to the acceptance of the view that the acute attack is due to them, but it should be borne in mind that when they are not found they may really have been present for a time and subsequently may have been removed by solution or by the activity of phagocytes. The studies by His, Jr., of uric-acid excretion in the acute attack have shown that uric acid is retained in the period just preceding the attack and is excreted in excess during the attack, a fact which makes it probable that deposits occur somewhere just before the attack and are redissolved again during the attack. But whether this fact stands in a causative relation to the attack, or is a mere coincidence therewith, is not known. Since deposits of urates are frequently found in the joint cartilages after an acute attack, and since in the attack it is the skin and soft parts about the joint (and not elsewhere) which are involved, it seems fair to localize the acute attack in the joint and its immediate neighborhood. Whether the deposits or their solution cause it, or simply accompany it, is not known.

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[1] Beiträge zur Experimentellen Therapie, No. 10, 1905.

[2] Ultramicroskopische Protein Untersuchungen. v. Behring's Beiträge, No. 10, 1905.

[3] Virchow's Arch., vol. clxxix, No. 21.

[4] Pflüger's Arch., vol. cv, 1904.

[1] Ebstein, W. u. Sprague, C.: Beitrag zur Analyse gichtischer Tophi. Virchow's Arch., 1891, cxxv, 207.

[2] Riehl, G.: Zur Anatomie der Gicht, Wien. klin. Wchnschr., 1897, x, 761. See also Ueber die Anatomie der Gichtknoten. Schmidt's Jahrbücher. 1897, ccliii, 271.

[3] Freudweiler, M.: Experimentelle Untersuchungen über das Wesen der Gichtknoten, Deut. Arch. f. klin. Med., 1898, lxii, 266, and Experimentelle Untersuchungen über die Entstehung der Gichtknoten, *ibid.*, 1901, lxviii, 155.

[4] His, Jr., W.: Nachtrag zu der Arbeit von Freudweiler, Deut. Arch. f. klin. Med., 1899, lxv, 618. Schicksale und Wirkungen des sauren harnsauren Natrons in Bauch, und Gelenkhöhle des Kaninchens, Deutsche Arch. f. klin. Med., 1900, lxvii, 81.

Why the tophi should be painless and chronic and the paroxysm painful and acute has exercised the minds of various observers. It has been suggested that tophi occur in looser tissues, the deposits in firm cartilage leading to a more energetic inflammatory reaction (Garrod). It may be that the rapidity of the deposits is a factor, the tophi forming too slowly to be markedly irritative (Laquer), or it may be that the amount of the deposits dissolved determines the intensity of the inflammation, the deposit itself acting chiefly mechanically, while the dissolved urates act as chemical irritants; the motion at a joint might lead to rapid solution, with production of an acute attack (His, Jr.).

We have hinted that hypotheses concerning the mode of formation of the deposits are abundant. Some ascribe the precipitation to the excessive production of uric acid in the blood and tissue juices; others to a decrease in the solvent power of the blood and juices for uric acid or mononatrium urate; others to the occurrence of uric acid in some less soluble modification than the form we know; and still others to local changes in the tissues themselves rather than in the body fluids or in the uric acid or urates.

The hypothesis that the deposits are due to increased formation of uric acid in the blood has had but few supporters, but a larger number of investigators have been appealed to by the view that the urates are precipitated on account of some diminution of the solvent power of the blood and juices. Many felt sure that the alkalinity of the blood is altered in gout, and there are a host of researches dealing with this point, most of them unfortunately with imperfect technic. The most reliable studies on the alkalinity appear to be those of Magnus-Levy[5]; from them it seems clear that, though the alkalinity of the blood is somewhat variable in gout, the variations occur within narrower limits than those which hold for normal individuals, and, moreover, variations are independent of the acute attacks. It is hard to see, anyway, why, if the deposits are due to diminished alkalinity of the blood, they should not be general instead of local. Ebstein, to avoid this difficulty, assumed locally limited acid production in the tissues as the cause of the deposits. He based his theory, however, on the ground that necrosis precedes the deposit, and this basis has been destroyed by the researches of His and Freudweiler, which demonstrate, we think conclusively, that the deposits precede the necrosis. A better founded view than that of diminished alkalinity is one which supposes that the solvent power of the fluids is diminished through the presence of other salts in solution. The work of Roberts, Ritter and Strauss has gone far to show that deposition may depend on the relative amounts of other salts present, especially the amounts of mononatrium and dinatrium phosphate. Here, again, however, the question has to be asked, How can local rather than general precipitation be accounted for? Of the efforts to answer it none can be regarded as wholly satisfactory. Freudweiler thinks inflammatory change a prerequisite; von Noorden assumes the local activity of some ferment; Zagari and Pace suggest some local alteration in the vital activities of cell nuclei—all vague and unsupported hypotheses. That some local cause, however, must be conceived of as responsible for the local deposits seems necessary; we must wait for future researches to reveal it to us.

That distally placed joints and certain special fibrocartilages should be picked out by the gouty deposits is certainly interesting and peculiar. It can be no accident that these particular localities are sites of predilection. Some believe that nervous influences are answerable—a disease of peripheral trophic nerves (Paget) or disturbances of trophic centers (Duckworth, Luff). Others point out that the parts affected are, as a rule, poorly vascularized. Some of the localities, such as the joint of the great toe, are unusually exposed to pressure and trauma. Possibly the fact that cartilages are rich in sodium salts (Roberts) may be a factor. That the ears and peripheral joints, more than other parts, are exposed to cold is adduced by Mordhorst as, perhaps, important. Our knowledge at present is obviously wholly unsatisfactory regarding the matter.

To sum up this portion of our review, it may be said, then, that, while the tophi and the acute gouty paroxysm appear in different ways, both are apparently associated with deposits of mononatrium urate. The mechanism of deposition is not yet wholly clear, though local conditions in the tissues must probably be held responsible in connection with the excess of uric acid in the blood. As to what those local conditions may be, we are as yet profoundly ignorant.

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[5] Magnus-Levy, A.: Harnsäuregehalt und Alkalescenz des Blutes in der Gicht. Verhandl. d. xvi Kongr. f. inn. Med., 1898, 266.

### THE LARGER CHARITY.

The old Greek proverb ran, "Count no man happy until his death." In the more modern time it has been said, "Judge no man absolutely until you have read his last book." For those who felt that, in spite of its formal legal punishment, Oscar Wilde's fall was due to mental rather than to moral torsion, to the manifestation of a mind diseased rather than of a will impatient of restraint and hopelessly malicious, his last book, "De Profundis," which he deliberately left to be published posthumously, will prove the confirmation of this impression. Most physicians who have followed his career must have realized that many of his actions were associated with delusions of grandeur, though the world looked on them as scarcely more than the exhibition of overweening vanity. One of the most striking passages in De Profundis is that in which Oscar Wilde sums up what he considers to have been his influence on his generation. This passage reveals better than long hours of investigation of the living subject might have done the true pathologic character of the man. "I was a man," he says, "who stood in symbolic relations to the art and culture of my age. I had realized this for myself at the very dawn of manhood, and had forced my age to realize it afterward. Few men hold such a position in their own lifetime, and have it so acknowledged. It is usually discerned, if discerned at all, by the historian or critic, long after both the man and his age have passed away. With me it was different. I felt it myself, and made others feel it. Byron was a symbolic figure, but his revelations were to the passion of his age and its weariness of passion. Mine were to something more noble, more permanent, of more vital issue, of larger scope." This is, of course, superlatively egotistical, though not much more so than are many passages in Rousseau's Confessions. In both cases, however, the mental degenerescence is patent. Some time there will come the proper appreciation of these pathologic mental conditions that mean so much even for the apparently sane and consequent on it will inevitably develop that larger charity which forgives readily because it knows more of the real conditions, for it has been very well said that to know all would be to forgive all.

### SMALLPOX HOSPITALS.

The report issued by the local government board of Liverpool with reference to the influence of smallpox hospitals in spreading the disease among persons living in their neighborhood, confirms the fact that these hospitals should be used not only for the purpose of isolating persons affected with smallpox, but should be themselves isolated so far as locality is concerned. Investigations from Liverpool during the recent severe and protracted epidemic of smallpox show that inhabited areas within a mile of each of the three hospitals used have suffered more severely than the city as a whole, and that within these hospital areas the dwellings nearer the hospitals have sustained a far heavier incidence of smallpox than those farther away. It is shown, further, that the exceptional incidence of smallpox within these areas has corresponded in point of time with the use of these hospitals for the treatment of acute cases of smallpox. It would be of interest, as well as of great importance from the standpoint of prevention, to know whether these findings are also true of the American isolation hospitals. As a rule, however, the isolation hospitals in this country are situated at some point remote from the city or in unpopulated or, at most, thinly populated portions of cities. So far as we are aware, comparatively few cases of smallpox, in proportion, have occurred in the inhabited areas surrounding the isolation hospitals.

### ANTICIGARETTE LEGISLATION.

The anticigarette movement does not differ widely from the other "anti" industries in that it is marked by a disregard of facts and that its motive seems to be prejudice based on misinformation. It is peculiar, however, in the respect that one woman seems able to stampede state legislatures into the enactment of ridiculously drastic laws against the least harmful form of tobacco consumption. Indiana and Wisconsin recently have adopted anticigarette legislation that revives memories of the Inquisition. So far as purely physical well-being goes, those who totally abstain from all forms of tobacco have slightly the advantage. Some men for a good lifetime use large amounts of tobacco with impunity. Other men are unable to use even small quantities without more or less early ill effect. Between these groups are the majority of smokers who find that moderate use of tobacco does them no appreciable harm. Until maturity, men should not use tobacco in any form, as its ill effects at that period are definitely established. As to the different forms in which the tobacco temptation is set before us, cigarettes—unless they are sophisticated with the more injurious opium—are no worse for boys than are cigars or a pipe, but their very mildness puts them within the tolerance of the immature smoker. We hold that cigarettes should be kept away from boys, just as should all tobacco; and we endorse all rational efforts to that end. Among adults the use of cigarettes does less harm than the use of tobacco in any other form, with the sole exception that here, again, the very mildness of "the smoke" tempts many to inhale the vapor, and this habit of inhaling is likely in the long run to be detrimental to health. Cigar smoke is not usually inhaled, simply because it is too strong to be withstood by any but an organism most resistant to tobacco. On the other hand are numbers of men who without harm smoke cigarettes moderately and with enjoyment. The paper wrapper, from the hygienic standpoint, has certain decided advantages over the leaf wrapper. Finally, it seems peculiar that the "anticigaretters" should appear in the rôle of advocates of the use of the stronger preparations of the drug, but this is explained by the vehement unreason of the movement which temporarily overrides the intelligence of the ill-informed. In its present instance it is overreaching itself. Too drastic laws can not be enforced, and the courts will fill them full of holes. This is unfortunate, because the inevitable reaction will again bring the temptation within reach of the young. What we need are moderate laws against the sale of any tobacco to boys, and then their strict enforcement. The cigarette will be with us long after the people of Indiana and Wisconsin have forgotten their present funny statutes.

## THE CORSICAN METHOD IN PURE FOOD OPPOSITION.

The interests opposed to a national pure-food law are not noted for the nicest scruples in the choice of methods to postpone the inevitable day when the public health may no longer be made the sport of adulterating plunderers. Few, nevertheless, were prepared for the appalling revelation to be found in the editorial columns of *Collier's Weekly,* May 6, 1905. Therein it is alleged that, recognizing the inevitable failure of a fair combat of fact and argument, the associated adulterators have, without compunction, endeavored to deliver a stab in the back to the pure-food movement. We are told that two sensational and grossly overexaggerated articles, depicting in impossible terms and figures the evils of food and drug adulteration, which recently were widely circulated in the press as having been read before a late meeting in Chicago of the executive committee of the National Association of State Dairy and Food Departments, were never in any way presented to or endorsed or authorized by that association. One of these apocryphal articles was attributed to Dr. J. N. Hurty, secretary of the State Board of Health of Indiana, who, according to *Collier's,* has received a letter of regret from the secretary of the association. Dr. Hurty "delivered no address at all, and was not in Chicago at the time." Some of the devious ways of the "Senegambian" are not yet quite clear, but the plan seems to be to "out-Herod Herod," thus making the pure-food cause ridiculous and at the same time setting up a man of straw which can later be picked to pieces with great indignation and much parade of injured virtue. If *Collier's* information is accurate, its caption for the editorial is apt—"The Poison Campaign." The other article repudiated by the association is said to be by Dr. Edward Gudeman, a New York chemist whose past affiliations have not been with the pure-food cause. There is mention of a "pure-food expert," one "Professor" Hough, who, 'tis said, receives a $25,000 retainer as attorney for "the most powerful organization opposing pure-food legislation." Another who "receives mention" is Mr. Paul Pierce, who propounds in a recent issue of *Public Opinion* terrifying but unconvincing figures. Every physician must constitute himself a committee of one to get these and other facts concerning pure-food legislation before the public in their true light. Then it will be easy next autumn to lay before Congress a clean-cut issue. This is just what the adulterators fear, as the next Congress is a new one elected under the inspiration of the Roosevelt campaign. *Collier's* deserves credit and thanks for uncovering this apparent plot to lead the pure-food advocates into an untenable position.

## STATE BOARD EXAMINATIONS DURING 1904.

We publish this week in tabular form,[1] the results of the examinations for medical licenses for 1904 in the various states and territories, together with the number of those licensed on diplomas. The peculiar conditions existing in Florida and in Indian Territory made it impossible to obtain from them reports that could be utilized. The statistical information regarding medical education and licensing included in these tables will be found most valuable and will bear careful study. Many lessons can be learned from these tables by those who are sufficiently interested to dig them out.

TABLE E—COLLEGES GROUPED BY STATES,
Showing Number Examined and Percentage of Failures.

| Colleges of | Graduates 1904. | | Graduates 1900-04. | | Graduates 1899 & prev. | | Graduates all Years. | | Rank Acc'd'g to No. Examined. | Rank Acc'd'g to Low Per Cent. |
|---|---|---|---|---|---|---|---|---|---|---|
| | Number Examined. | Per cent Failed. | Number Examined. | Per cent Failed. | Number Examined. | Per cent Failed. | Number Examined. | Per cent Failed. | | |
| Alabama | 32 | 3.1 | 36 | 2.8 | 5 | 20.0 | 41 | 11.1 | 21 | 10 |
| Arkansas | 1 | 0 | 1 | 0. | 1 | 100.0 | 3 | 33.3 | 32 | 30 |
| California | 116 | 18.1 | 157 | 17.8 | 6 | 50.0 | 163 | 18.9 | 11 | 23 |
| Colorado | 2 | 0 | 20 | 5.0 | 4 | 0 | 24 | 4.2 | 28 | 2 |
| Connnecticut | 14 | 0. | 36 | 5.5 | 4 | 0 | 40 | 5.0 | 23 | 3 |
| D. of Columbia | 82 | 12.2 | 135 | 12.6 | 12 | 33.3 | 148 | 14.8 | 14 | 17 |
| Georgia | 73 | 1.4 | 82 | 6.1 | 7 | 28.5 | 91 | 8.8 | 18 | 9 |
| Illinois | 720 | 4.9 | 936 | 6.6 | 81 | 23.4 | 1023 | 8.2 | 1 | 7 |
| Indiana | 34 | 8.8 | 40 | 10.0 | 4 | 75.0 | 45 | 15.5 | 22 | 19 |
| Iowa | 139 | 10.1 | 149 | 12.1 | 22 | 36.4 | 171 | 15.2 | 10 | 18 |
| Kansas | 8 | 0 | 7 | 14.3 | 4 | 50.0 | 11 | 27.3 | 31 | 25 |
| Kentucky | 99 | 28.3 | 155 | 29.7 | 40 | 40.0 | 211 | 32.2 | 9 | 29 |
| Louisiana | 74 | 6.7 | 79 | 10.1 | 6 | 16.7 | 107 | 15.9 | 17 | 21 |
| Maine | 25 | 20.0 | 29 | 17.2 | 3 | 0 | 32 | 15.6 | 25 | 20 |
| Maryland | 399 | 27.8 | 579 | 28.8 | 41 | 26.8 | 620 | 28.7 | 4 | 26 |
| Massachusetts | 179 | 6.7 | 259 | 6.2 | 35 | 17.1 | 294 | 7.5 | 8 | 5 |
| Michigan | 67 | 3.0 | 119 | 7.5 | 40 | 27.5 | 159 | 12.5 | 12 | 13 |
| Minnesota | 101 | 8.9 | 139 | 12.9 | 10 | 10.0 | 149 | 12.8 | 13 | 14 |
| *Missouri | 176 | 16.5 | 230 | 24.3 | 79 | 48.1 | 310 | 30.3 | 7 | 27 |
| Nebraska | 83 | 6.0 | 100 | 10.0 | 8 | 25.0 | 108 | 11.1 | 16 | 11 |
| New Hampshire | 5 | 0 | 12 | 8.3 | 2 | 50.0 | 14 | 13.6 | 29 | 15 |
| New York | 391 | 2.5 | 564 | 2.8 | 82 | 22.0 | 646 | 5.3 | 3 | 4 |
| North Carolina | 44 | 34.1 | 58 | 39.6 | ..... | ...... | 58 | 39.6 | 20 | 32 |
| Ohio | 211 | 9.0 | 257 | 14.8 | 58 | 39.7 | 316 | 19.3 | 6 | 24 |
| Oregon | 28 | 3.6 | 29 | 3.4 | ..... | ...... | 29 | 3.4 | 26 | 1 |
| Pennsylvania | 439 | 8.0 | 610 | 10.6 | 49 | 22.4 | 659 | 11.5 | 2 | 12 |
| South Carolina | 21 | 4.8 | 21 | 4.2 | 2 | 50.0 | 26 | 7.7 | 27 | 6 |
| Tennessee | 219 | 25.1 | 315 | 3.0 | 72 | 29.2 | 476 | 30.7 | 5 | 28 |
| Texas | 25 | 16.0 | 33 | 15.1 | 2 | 0 | 35 | 14.3 | 24 | 16 |
| Vermont | 56 | 8.9 | 74 | 8.1 | 13 | 69.2 | 87 | 17.2 | 19 | 22 |
| Virginia | 80 | 6.2 | 119 | 8.4 | 9 | 11.1 | 129 | 8.5 | 15 | 8 |
| Wisconsin | 8 | 37.5 | 12 | 33.3 | ..... | ...... | 12 | 33.3 | 30 | 31 |
| All States | 3951 | 11.2 | 5395 | 13.9 | 701 | 30.5 | 6241 | 16.0 | .... | .... |

* Figures for Missouri would doubtless be different, but owing to the fact that the year of graduation was not kept we could not use their report, not being able to differentiate between graduates and non-graduates.

As will be seen, Illinois had the largest number examined before the various state boards, followed by Pennsylvania, New York, Maryland, Tennessee and Ohio. Of the states having 100 or more examined, New York ranks first in having the lowest percentage of failures, followed, respectively, by Massachusetts, Illinois, Nebraska and Pennsylvania. Twenty-one states secure rank above the average.

Table A shows the number licensed from all colleges, and from the undergraduates. Table B gives the results of 1904 graduates. It is seen that of all candidates examined during 1904, 3,982, or 56.5 per cent., were graduates of 1904. In Table C we have taken graduates from 1900 to 1904, inclusive, to represent recent graduates, while Table D is made up of graduates of 1899 and previous years as representing older practi-

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[1] The larger tables are inserted opposite page 1476.

### TABLE F—COLLEGES HAVING 50 OR MORE EXAMINED.

TABLE SHOWS TOTAL NUMBER EXAMINED, PERCENTAGE OF FAILURES AND NUMBER OF STATES IN WHICH EACH COLLEGE HAD REPRESENTATIVES.

| Name of College. | Graduates 1904. | | | Graduates 1900-1904. | | | Graduates 1899 and Prev. | | | Graduates all Years. | | | Margin No. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | No. Examined. | Per Cent Failed. | No. States. | No. Examined. | Per Cent Failed. | No. States. | No. Examined. | Per Cent Failed. | No. States. | No. Examined. | Per Cent Failed. | No. States. | |
| Rush Medical College | 124 | 0.8 | 13 | 221 | 2.3 | 25 | 39 | 25.6 | 16 | 260 | 5.8 | 26 | 32 |
| University of Illinois | 191 | 3.6 | 17 | 227 | 5 3 | 20 | 17 | 29.4 | 13 | 244 | 7.0 | 22 | 25 |
| College of Physicians and Surgeons, N. Y. | 135 | 3.7 | 14 | 221 | 3.2 | 22 | 17 | 11.8 | 10 | 238 | 3.8 | 26 | 101 |
| Jefferson Medical College | 136 | 7.3 | 22 | 195 | 10.3 | 29 | 20 | 30.0 | 16 | 215 | 12.1 | 34 | 130 |
| Northwestern University Medical School | 129 | 2.3 | 17 | 147 | 1.4 | 21 | 12 | 0. | 9 | 161 | 1.3 | 23 | 31 |
| Memphis Hospital Medical College | 58 | 26.3 | 7 | 81 | 25.9 | 10 | 11 | 9.1 | 6 | 161 | 36.7 | 13 | 141 |
| Harvard University Medical School | 90 | 0. | 6 | 131 | 0. | 13 | 22 | 4.5 | 13 | 156 | 0.6 | 17 | 70 |
| University of Maryland | 93 | 21.7 | 18 | 134 | 23.1 | 18 | 7 | 14.5 | 8 | 141 | 22.7 | 20 | 65 |
| University of Pennsylvania | 70 | 5.7 | 9 | 118 | 5.9 | 21 | 13 | 8.3 | 9 | 131 | 6.1 | 26 | 128 |
| College of Physicians and Surgeons, Balt. | 80 | 30.0 | 14 | 107 | 28.0 | 20 | 19 | 15.8 | 12 | 126 | 26.2 | 25 | 62 |
| Baltimore Medical College | 84 | 21.4 | 16 | 114 | 24 5 | 20 | 8 | 25.0 | 10 | 121 | 24.0 | 26 | 60 |
| University of Michigan | 52 | 3.8 | 19 | 87 | 4.6 | 26 | 22 | 31.8 | 13 | 109 | 10.0 | 29 | 76 |
| University of Minnesota | 80 | 1.3 | 6 | 98 | 2.0 | 11 | 8 | 0. | 7 | 106 | 1.9 | 13 | 79 |
| Medico-Chirurgical College, Phila., Pa | 78 | 16.7 | 7 | 98 | 21.4 | 13 | 4 | 0. | 4 | 102 | 20 8 | 16 | 132 |
| Bellevue Hospital | 38 | 2.6 | 6 | 58 | 1.7 | 6 | 41 | 26 8 | 27 | 99 | 12.1 | 30 | 107 |
| Maryland Medical College | 74 | 37 8 | 13 | 91 | 39.6 | 16 | ...... | ...... | ...... | 91 | 39.5 | 16 | 67 |
| Tulane University | 69 | 4.3 | 5 | 69 | 4.3 | 5 | 4 | 25.0 | 4 | 89 | 7.8 | 9 | 58 |
| University of Vermont | 56 | 8.9 | 8 | 74 | 8.1 | 10 | 13 | 69.2 | 7 | 87 | 17.2 | 12 | 151 |
| Hahnemann Medical Col. and Hos., Pa | 69 | 1.4 | 8 | 82 | 2.4 | 15 | 2 | 50.0 | 3 | 84 | 3 6 | 16 | 129 |
| Western Pennslyvania Medical College | 53 | 7.5 | 4 | 68 | 16 1 | 5 | 4 | 50.0 | 3 | 72 | 18.0 | 7 | 133 |
| • University of the South | 38 | 47.4 | 9 | 63 | 49.2 | 15 | 3 | 66.7 | 3 | 70 | 51.4 | 17 | 142 |
| Columbian University, D. C | 44 | 4.5 | 7 | 66 | 3.0 | 13 | 4 | 25 0 | 5 | 70 | 4.3 | 16 | 15 |
| Cornell University | 47 | 2.1 | 4 | 67 | 1.5 | 7 | 2 | 50.0 | 2 | 69 | 2.8 | 8 | 102 |
| Tufts College Medical School | 44 | 6.8 | 4 | 63 | 7.9 | 11 | 6 | 83.3 | 4 | 69 | 14.5 | 11 | 71 |
| Illinois Medical College | 42 | 11.9 | 10 | 61 | 19.7 | 17 | 2 | 50.0 | 2 | 65 | 21.5 | 19 | 29 |
| University of Iowa | 55 | 10.0 | 6 | 57 | 8.7 | 5 | 8 | 37 5 | 8 | 65 | 12.4 | 8 | 46 |
| Baltimore University | 27 | 45.9 | 13 | 59 | 67 8 | 14 | 5 | 80 0 | 5 | 65 | 69.2 | 15 | 61 |
| Barnes Medical College | 33 | 12.1 | 10 | 51 | 23.5 | 18 | 12 | 50.0 | 11 | 65 | 30.8 | 24 | 89 |
| Keokuk Med. Coll. of Physicians and Surg. | 45 | 15.5 | 3 | 53 | 18.9 | 5 | 9 | 33 3 | 9 | 62 | 21.0 | 11 | 43 |
| Ohio Medical University | 37 | 5.4 | 5 | 42 | 11.9 | 10 | 18 | 38.9 | 14 | 61 | 19.7 | 20 | 121 |
| Johns Hopkins University | 26 | 3.8 | 15 | 58 | 1.7 | 20 | 1 | 0. | 1 | 59 | 1.7 | 20 | 63 |
| Medical College of Virginia | 44 | 6.8 | 4 | 54 | 7.4 | 4 | 3 | 0. | 4 | 57 | 7 0 | 6 | 155 |
| Hahnemann Medical Col., and Hos., Chi. | 45 | 2.2 | 6 | 52 | 1.9 | 9 | 3 | 33.3 | 4 | 55 | 3.6 | 22 | 26 |
| Woman's Medical College of Pennsylvania | 32 | 9.4 | 10 | 48 | 8.3 | 13 | 6 | 16 7 | 5 | 54 | 9.2 | 12 | 131 |
| Chicago Homeopathic Medical College | 40 | 7.5 | 9 | 49 | 12.2 | 11 | 4 | 0. | 5 | 53 | 11.3 | 14 | 23 |
| Marion Sims-Beaumont Col. of Med., St. L. | 40 | 10.0 | 9 | 44 | 13 6 | 11 | 8 | 25.0 | 10 | 53 | 15.1 | 17 | 90 |
| Albany Medical College | 38 | 2.6 | 3 | 46 | 4.3 | 5 | 5 | 60 0 | 3 | 51 | 9.8 | 7 | 100 |
| Long Island College Hospital | 35 | 0. | 2 | 48 | 2.1 | 3 | 3 | 0. | 4 | 51 | 2.0 | 7 | 104 |
| Vanderbilt University | 24 | 0. | 6 | 29 | 0. | 8 | 22 | 9.1 | 13 | 51 | 5.9 | 18 | 138 |
| Kentucky School of Medicine | 20 | 35.0 | 7 | 40 | 27.5 | 15 | 10 | 40.0 | 9 | 50 | 30.0 | 21 | 51 |
| University of Buffalo | 39 | 5.1 | 3 | 44 | 6.8 | 3 | 6 | 16 7 | 5 | 50 | 8.0 | 7 | 109 |
| Medical College of Ohio | 37 | 0. | 2 | 43 | 0. | 6 | 7 | 14.5 | 7 | 50 | 2.0 | 11 | 118 |
| Totals | 2591 | 10.0 | ...... | 3561 | 11.6 | ...... | 430 | 26.7 | ........ | 4088 | 14 0 | 46 | |

Eleven of the above 42 colleges had a failure percentage of 5 or less, and ten were between 5 and 10 per cent. Therefore half of the group had a percentage of 10 or less. Only two colleges had a failure percentage above 40, Baltimore University reaching 69.2 and the University of the South 51.4.

Some of the colleges show a better percentage among their older graduates than among the recent, an apparent retrogression. The majority, however, as shown by the average percentages seem to be lowering their failure percentages, which points to a higher standard.

In making comparisons, beside the percentage, one must consider also the number examined and the number of state boards before which the college was represented. The above group is arranged according to the number examined. As to the representation before state boards, Jefferson leads with a record of 34, followed by Bellevue, 30; University of Michigan, 29, and Rush, Physicians and Surgeons, New York, and Baltimore Medical Colleges, each before 26. Sixteen colleges were represented before twenty or more different state boards.

tioners. Tables B, C and D are made for the purpose of showing the standing of graduates of the year, of the recent graduates—since 1900—and of the older practitioners. The information here supplied may help in solving the problems connected with the reciprocity movement. We find 5,551, or about 79 per cent. of the total, to be recent graduates, while about 12 per cent. of the total are older practitioners.

Table E is based on the first four tables, and is interesting since by it we can see whether the colleges in a particular state, as a group, are progressing. It is encouraging to note that in almost all states the percentage of failures is smaller for the 1904 graduates than for the 1900-1904 group and is smaller for this second group than for the graduates of 1899 and previous. Further, this table shows which states send out the most physicians and, if grades mean anything, the class of physicians.

Table F, likewise based on the first four tables, allows us to make comparisons between the larger colleges, or the 42 having 50 or more candidates examined before state boards during the year. There were 147 colleges represented, while 105, or 71 per cent., had less than 50 candidates each, and 62, or 42 per cent., had less than 25 candidates each. To put it another way, 2,271, or about 32 per cent. of all the candidates, came from 14, or 9.5 per cent. of all the colleges represented, while 4,088, or 58 per cent. of all candidates, came from 42, or 29.3 per cent., of the colleges.

A study of the failures is likewise interesting. The 14 colleges above mentioned, while furnishing 32 per cent. of all candidates, had less than 20 per cent. of all failures, while the 42 largest colleges, although having 58 per cent. of all candidates, had only 41.4 per cent. of all failures, thus favoring the larger colleges from the standpoint of excellence.

While 1904 graduates made up 56.5 per cent. of all candidates, they had only 449, or 32.9 per cent., of the 1,363 failures. The recent graduates (of 1900 to 1904, inclusive), while giving 5,551, or 79 per cent.

TABLE G—COMPARING RESULTS IN HOME STATES AND ELSEWHERE.

| Marginal Number. | Result in home state. | | Results in all other states. | | Registered on Diploma. | Total. |
|---|---|---|---|---|---|---|
| | P | F | P | F | | |
| 1 | 3 | .. | ... | .. | .... | 3 |
| 2 | 27 | 1 | 1 | .. | .... | 29 |
| 3 | 1 | .. | ... | .. | .... | 1 |
| 4 | 35 | 3 | 1 | .. | 1 | 40 |
| 5 | 22 | 2 | ... | .. | .... | 24 |
| 6 | 3 | 2 | ... | 1 | .... | 6 |
| 7 | 6 | .. | ... | .. | .... | 6 |
| 8 | 7 | 10 | ... | .. | 2 | 19 |
| 9 | ... | .. | ... | .. | .... | ... |
| 10 | 20 | 3 | 1 | .. | .... | 24 |
| *11 | ... | .. | ... | .. | 26 | 26 |
| *12 | ... | .. | ... | .. | 6 | 6 |
| *13 | ... | .. | 2 | .. | 13 | 15 |
| 14 | 11 | .. | 3 | .. | .... | 14 |
| 15 | 28 | .. | 14 | 2 | .... | 44 |
| 16 | 8 | 1 | 9 | .. | 1 | 19 |
| 17 | 3 | 3 | 10 | 4 | .... | 20 |
| 18 | 24 | .. | 4 | .. | .... | 28 |
| 19 | 15 | .. | 1 | 1 | .... | 17 |
| 20 | 25 | .. | 2 | .. | .... | 28 |
| 21 | 1 | .. | 4 | .. | .... | 5 |
| 22 | 10 | .. | 2 | .. | .... | 12 |
| 23 | 25 | .. | 12 | 3 | 3 | 43 |
| 24 | 11 | 4 | 1 | 1 | 1 | 18 |
| 25 | 141 | 2 | 43 | 5 | 6 | 197 |
| 26 | 35 | 1 | 9 | .. | .... | 45 |
| 27 | 15 | 2 | 2 | 1 | .... | 20 |
| 28 | 8 | .. | 7 | .. | .... | 15 |
| 29 | 29 | 2 | 8 | 3 | .... | 42 |
| 30 | 18 | 1 | ... | .. | .... | 19 |
| 31 | 72 | .. | 54 | 3 | 3 | 132 |
| 32 | 103 | .. | 20 | 1 | 4 | 128 |
| 33 | 13 | 4 | 2 | .. | .... | 19 |
| 34 | 19 | 2 | 3 | .. | .... | 24 |
| 35 | 18 | .. | ... | .. | .... | 18 |
| 36 | 8 | .. | ... | 1 | .... | 9 |
| 37 | 13 | 2 | 6 | .. | .... | 21 |
| 38 | 3 | .. | ... | .. | .... | 3 |
| 39 | ... | .. | ... | .. | .... | ... |
| 40 | 1 | .. | ... | .. | .... | 1 |
| 41 | ... | .. | ... | .. | .... | ... |
| 42 | 13 | .. | ... | .. | .... | 13 |
| 43 | 37 | 6 | 1 | 1 | 1 | 46 |
| 44 | 12 | .. | 4 | 2 | 1 | 19 |
| 45 | 8 | .. | ... | .. | .... | 8 |
| 46 | 48 | 3 | 2 | 2 | 1 | 56 |
| 47 | ... | .. | 3 | .. | .... | 3 |
| 48 | 1 | .. | 4 | .. | .... | 5 |
| 49 | ... | .. | ... | .. | .... | ... |
| 50 | ... | 1 | 5 | 8 | 62 | 76 |
| *51 | ... | .. | 13 | 7 | 31 | 51 |
| *52 | ... | .. | 15 | 1 | 29 | 45 |
| *53 | ... | .. | ... | .. | .... | ... |
| *54 | ... | .. | ... | 1 | .... | 1 |
| *55 | ... | .. | 17 | 5 | 35 | 57 |
| *56 | ... | .. | 21 | 5 | 23 | 49 |
| 57 | 2 | 2 | 1 | .. | .... | 5 |
| 58 | 53 | .. | 13 | 3 | 1 | 70 |
| 59 | 19 | 5 | 1 | .. | .... | 25 |
| 60 | 12 | 6 | 54 | 12 | .... | 84 |
| 61 | ... | 2 | 10 | 15 | 8 | 35 |
| 62 | 15 | 10 | 41 | 14 | 2 | 82 |
| 63 | 5 | .. | 20 | 1 | .... | 26 |
| 64 | 12 | .. | 2 | .. | .... | 14 |
| 65 | 31 | 13 | 39 | 10 | 1 | 94 |
| 66 | 1 | .. | ... | .. | .... | 1 |
| 67 | 8 | 10 | 38 | 18 | 1 | 75 |
| 68 | 12 | .. | 8 | 1 | .... | 21 |
| 69 | 9 | 4 | 7 | 4 | .... | 24 |
| 70 | 82 | .. | 8 | .. | .... | 90 |
| 71 | 37 | 3 | 4 | .. | .... | 44 |
| 72 | 4 | .. | 8 | .. | 1 | 13 |
| 73 | 1 | .. | 1 | .. | .... | 2 |
| 74 | ... | .. | 1 | .. | .... | 1 |
| 75 | ... | .. | ... | .. | .... | ... |
| 76 | 30 | .. | 20 | 2 | 1 | 53 |
| 77 | ... | .. | ... | .. | 1 | 1 |
| 78 | ... | .. | ... | .. | .... | ... |
| 79 | 63 | 1 | 16 | .. | .... | 80 |
| 80 | 9 | 6 | 4 | 2 | .... | 21 |
| 81 | ... | .. | ... | .. | .... | ... |
| *82 | ... | .. | 4 | 2 | 6 | 12 |
| *83 | ... | .. | 4 | 3 | 30 | 43 |
| *84 | ... | .. | 2 | .. | 7 | 9 |
| *85 | ... | .. | 6 | 3 | 8 | 17 |
| *86 | .. | .. | 2 | 1 | 9 | 12 |
| *87 | ... | .. | 3 | 1 | 4 | 8 |
| *88 | ... | .. | 6 | 1 | 13 | 20 |
| *89 | ... | .. | 29 | 4 | 66 | 99 |
| *90 | ... | .. | 36 | 4 | 32 | 72 |
| *91 | ... | .. | 25 | 4 | 22 | 51 |
| *92 | ... | .. | ... | 1 | 6 | 7 |
| *93 | ... | .. | 1 | 4 | 5 | 10 |
| *94 | ... | .. | 27 | 1 | 29 | 57 |
| *95 | ... | .. | 2 | .. | 5 | 7 |
| 96 | 28 | .. | 1 | .. | 2 | 31 |
| 97 | 23 | .. | 7 | .. | .... | 30 |
| 98 | 18 | 4 | 1 | 1 | 3 | 27 |
| 99 | 1 | .. | 4 | .. | .... | 5 |
| 100 | 35 | 1 | 2 | .. | .... | 38 |
| 101 | 102 | 4 | 28 | 1 | 1 | 136 |
| 102 | 42 | 1 | 4 | .. | .... | 47 |
| 103 | 7 | .. | ... | .. | 3 | 10 |
| 104 | 31 | .. | 1 | .. | .... | 35 |
| 105 | 17 | .. | 1 | .. | .... | 18 |
| 106 | 4 | .. | ... | .. | .... | 4 |
| 107 | 30 | .. | 7 | 1 | .... | 38 |
| 108 | 27 | .. | 3 | .. | .... | 30 |
| 109 | 37 | 2 | ... | .. | 2 | 41 |
| 110 | 2 | 1 | 6 | 14 | .... | 23 |
| 111 | ... | .. | ... | .. | .... | ... |
| 112 | 16 | .. | 1 | .. | .... | 17 |
| 113 | 4 | .. | ... | .. | .... | 4 |
| 114 | 25 | .. | ... | 1 | .... | 26 |
| 115 | 11 | .. | 1 | .. | .... | 12 |
| 116 | 13 | 3 | 4 | 2 | 1 | 23 |
| 117 | 6 | 1 | 6 | 2 | .... | 15 |
| 118 | 37 | .. | ... | .. | 1 | 38 |
| 119 | 4 | .. | 1 | 1 | 1 | 7 |
| 120 | 14 | .. | 3 | 2 | 6 | 25 |
| 121 | 30 | 2 | 5 | .. | 5 | 42 |
| 122 | 26 | 2 | 3 | 1 | .... | 32 |
| 123 | 3 | 2 | ... | .. | .... | 5 |
| 124 | ... | .. | ... | .. | .... | ... |
| 125 | 16 | .. | 2 | .. | .... | 18 |
| 126 | 8 | .. | 1 | 1 | .... | 10 |
| 127 | 1 | .. | ... | .. | .... | 1 |
| 128 | 56 | 4 | 10 | .. | 1 | 71 |
| 129 | 52 | .. | 16 | 1 | .... | 69 |
| 130 | 78 | 7 | 48 | 3 | 1 | 137 |
| 131 | 17 | 1 | 12 | 2 | 2 | 34 |
| 132 | 50 | 13 | 15 | .. | .... | 78 |
| 133 | 45 | 4 | 4 | .. | .... | 53 |
| 134 | 19 | 1 | 1 | .. | .... | 21 |
| 135 | 2 | 2 | ... | .. | 2 | 6 |
| 136 | ... | .. | ... | .. | .... | ... |
| 137 | 8 | 1 | 10 | 1 | 2 | 22 |
| 138 | 17 | .. | 7 | .. | .... | 24 |
| 139 | 5 | 4 | 4 | 2 | 5 | 20 |
| 140 | 7 | 4 | 20 | 5 | 7 | 43 |
| 141 | 12 | 4 | 31 | 11 | .... | 58 |
| 142 | ... | .. | 20 | 18 | .... | 38 |
| 143 | ... | .. | ... | .. | .... | ... |
| 144 | 5 | .. | 14 | 2 | 1 | 22 |
| 145 | ... | .. | 2 | 1 | .... | 3 |
| 146 | .. | .. | 1 | .. | .... | 1 |
| 147 | 17 | .. | 1 | .. | .... | 18 |
| 148 | ... | 1 | 1 | .. | .... | 2 |
| 149 | ... | .. | ... | .. | .... | ... |
| 150 | 1 | 2 | ... | 1 | .... | 4 |
| 151 | ... | .. | ... | .. | .... | ... |
| 152 | .. | .. | ... | .. | .... | ... |
| 153 | .. | .. | ... | .. | .... | ... |
| 154 | 30 | .. | 21 | 5 | .... | 56 |
| 155 | 30 | 2 | 11 | 1 | .... | 44 |
| 156 | 17 | 1 | 8 | .. | .... | 26 |
| 157 | 6 | .. | 3 | 1 | .... | 10 |
| 158 | ... | .. | ... | .. | .... | ... |
| 159 | ... | 2 | 2 | .. | .... | 4 |
| 160 | 2 | 1 | 1 | .. | .... | 4 |
| Total.. | 2596 | | 1355 | | 559 | 4510 |
| Passed | 2402 | | 1105 | | .... | 3507 |
| Failed. | 194 | | 250 | | .... | 444 |
| Per Cent of Failures. | 7.5 | | 18.4 | | .... | 11.2 |

This table is a summary of Table B. All graduates who were examined in the state in which the college is located are grouped in one column, while all the graduates of that college who were examined in other states are in another column. This is for the purpose of showing the number of graduates who stay in the state in which the college is located; also to show what is evidently a fact, that, as a rule, the graduates of a certain school have a much better chance of passing the examination in the state in which the school is located than they have elsewhere. This should always be considered in making comparisons between colleges. A college having an exceedingly low standard, by having its graduates all locate in the home state, may thus show a lower percentage of failures than a college of much higher standard. This table will enable one to correct such an impression.

Colorado, Kentucky and Missouri registered without examination graduates of their own schools. These are starred in the table. There is nothing, therefore, to appear in the first double column opposite the colleges of these states.

To save space, marginal numbers are used in place of names of colleges. The numbers correspond with those in the large tables.

To illustrate the working of the table, take college No. 15: By reference to Table B, 15 is seen to be Columbian University, which is located in the District of Columbia. This institution had 28 graduates pass in the home state (District of Columbia) and none fail. In all other states there were 16 graduates examined, of whom 14 passed and 2 failed. P means passed, F failed.

of all candidates, have only 781, or 57.3 per cent. of all failures. On the other hand, the older practitioners, having 824, or 12 per cent. of all candidates, furnished 250, or about 18 per cent. of all failures.

The largest percentage of failures, of course, came in the 660 undergraduates (and others where the year of graduation had not been recorded). These furnished about 9 per cent. of all candidates and 340, or 24.8 per cent. of all failures. These results show progress in the right direction.

States vary much in the severity of marking. Kentucky, where the law requiring examination began only during the year, rejected 8 out of 12, or 60 per cent. of all applicants. Oklahoma is next (likewise but recently holding examination), rejecting 54.5 per cent. of all applicants.

The percentages by the various state boards must not be considered alone, however, since some states—New York, for example—scrutinize the applicants' credentials very carefully beforehand and thereby reject without examination most of those who otherwise would swell the number of rejected applicants.

Colorado, Kentucky, Missouri and Wyoming issued licenses without examination during part or all of 1904 on presentation of a diploma from a recognized medical college. The first three also held examinations the latter part of the year and hereafter in those states all applicants will have to pass examination. Undergraduates are allowed licenses on passing examination in Alabama, Arkansas, Colorado, Mississippi, Missouri, Oklahoma, Tennessee and West Virginia.

It is certainly gratifying to The Journal to be able to publish such complete statistics on this subject, and for this it desires to thank the secretaries of the various boards for their hearty and complete co-operation with us. We feel that the results are well worth the labor.

## *Medical News*

### DISTRICT OF COLUMBIA.

**Smallpox.**—It is reported that smallpox in virulent type has broken out in Washington.

**Hospital Changes.**—Dr. T. J. Sullivan has been made resident physician of the Washington Asylum Hospital, vice Dr. David C. Coleman, resigned.——Dr. Martin has been appointed resident physician at the Emergency Hospital, Washington, vice Dr. De Haven Sharp, resigned. Dr. John Holmes succeeds Dr. Martin.

**Army Medical School Commencement.**—The annual commencement exercises were held in Washington, April 11, when Surgeon-General Robert M. O'Reilly presented diplomas to 11 officers of the medical corps of the army; 2 contract surgeons, and 5 National Guard medical officers. Col. Charles L. Heizmann, assistant surgeon general, presided.

**New Army Hospital.**—The Secretary of War has approved the recommendation of the surgeon general for the erection of a new general army hospital nearly opposite the Battle National Cemetery. The property acquired contains 43 acres and cost about $98,000. The limit of cost of the hospital as fixed by congress was $300,000, of which $100,000 was made immediately applicable for the purchase of the site.

### ILLINOIS.

**March Smallpox.**—During March 227 cases of smallpox, with 6 deaths, were reported to the State Board of Health.

**Will Give Hospital.**—Dr. John Warner, Clinton, will build and endow a public hospital at Clinton. The building is expected to cost $35,000.

**Personal.**—Dr. William J. Eddy has been elected mayor of Shelbyville.——Dr. Edmund B. Owens, has been appointed health commissioner of Dixon.——Dr. Jane R. Keefer, Sterling, was recently operated on for appendicitis and gallstone disease, at Augustana Hospital, Chicago, and is progressing favorably toward recovery.

**Steal March on County Society.**—It is reported that three practitioners of Champaign County, whose names do not appear either in the Illinois Official Register or in Polk's Directory, and who were barred from membership in the Champaign County Medical Society, have retaliated by incorporating as the "Champaign County Medical Society or Association, Champaign; Scientific; Fraternal."

**Legislative News.**—The Committee on Judiciary of the House of Representatives gave a hearing on the optometry bill (Senate No. 237) May 2. The passage of the bill was urged by the secretary of the Illinois Optical Society. Drs. Wm. H. Wilder and E. V. L. Brown, representing the Chicago Medical Society, and J. A. Egan of the State Board of Health, argued against the bill. At the conclusion of the hearing the bill was killed by a unanimous vote of the committee.——The status of the anti-vivisection bill is unchanged.——Senate bill No. 311 (osteopathy), referred to the House April 21, was read the first time May 2, and referred to committee on judiciary.

#### Chicago.

**On Coroner's Staff.**—Dr. Warren H. Hunter has been appointed a member of the medical staff of the coroner's office. ——Dr. Otto W. Lewke, it is announced, will be retained.

**Low April Death Rate.**—Up to April 29 there had been reported 2,222 deaths, equivalent to an annual death rate of 14.02 per 1,000. This is the lowest April death rate except one, in 1897, which was 13.84. The average April death rate for the decennium was 16.22 per 1,000.

**Meningitis Figures.**—Since the last cerebrospinal fever flurry in 1898, when the disease caused 17 deaths all told in Chicago, there has been an average decrease of 21 per cent. in the deaths from the different forms of meningitis—epidemic, tubercular, cerebral and spinal—and the greatest total number of deaths from the epidemic form in any year was 18 in 1899.

**The Deaths of the Week.**—During the week ended April 29, 527 deaths were reported, equivalent to an annual mortality of 13.80 per 1,000. Consumption retains the lead with 83, followed by pneumonia, 74; nephritis, 42; heart diseases, 36; acute intestinal diseases and cancer, each 30; violence, 29; whooping cough, 27; measles, 9; diphtheria, 6, and typhoid fever, 3.

**German Hospital Staff.**—The revised list of the medical staff of the German Hospital is as follows: Consulting physician, Dr. Julius H. Hoelscher; attending physicians, Drs. Rudolph Menn and Frank W. Lambden; attending surgeons, Drs. William C. Wermuth and Emanuel J. Senn; attending gynecologists, Drs. H. Edward Sauer and Cecil von Bachelle; attending oculist and aurist, Dr. David Fiske; attending obstetrician, Dr. Wallace F. Grosvenor, and skin and urinary diseases, Dr. Louis E. Schmidt.

### MICHIGAN.

**Appropriation Allowed.**—As a result of persistent effort on the part of the medical profession of Detroit, the common council appropriated $100,000 for the contagious disease hospital, of which the city is in great need.

**Commencement.**—The thirty-seventh annual commencement exercises of the Detroit College of Medicine were held at the Light Guard Armory May 4.——From April 26 to May 6, the annual clinic of the Alumni Association of the college was held.

**In Peril by Fire.**—The house of Dr. Oliver P. Barber, Saginaw, was destroyed by fire April 17. Dr. Barber, who was alone in the house, attempted to lower himself from his bedroom window by means of a sheet, which gave way and he fell, breaking several fingers and spraining both ankles. The loss was about $20,000.

**Personal.**—Dr. Ernest Shillito has been appointed health officer of Marcellus township.——Dr. Arthur S. Scott, Laingsburg, has been appointed health officer of that village and of Sciota township.——Dr. Elliott K. Herdman has been re-elected city physician of Ypsilanti.——Dr. Walter E. Wilson, Grand Ledge, has been appointed a member of the State Board of Pardons, vice Dr. Frank W. Shumway, Williamston.——Dr. Louis S. Joy has been re-elected health officer of Marshall.——Dr. George L. Chamberlain has retired from the superintendency of the Upper Peninsula Hospital for the Insane, Newberry.——Dr. Charles Freiberg has succeeded Dr. Morton Gallagher as a member of the Bay City Board of Health.

### NEBRASKA.

**Creighton Commencement.**—A class of 34 was graduated from Creighton Medical College, Omaha, April 29. Dr. Albert P. Condon delivered the doctorate address.

**Silver Jubilee of Hospital.**—Creighton Memorial (St. Joseph's) Hospital, Omaha, celebrated the twenty-fifth anniversary of its institution, with solemn ceremony, April 27.

**Personal.**—Ray L. Pheasant returned to his home in Osceola, from Europe, April 14.——Dr. William H. Slattery has been made city physician of Lincoln, vice Dr. John V. Beachly.

**Governor Vetoes Medical Bill.**—The medical profession of Nebraska again passed through its biennial struggle for better medical legislation in vain. The McMullen Bill was a clear, legal definition of what constitutes a physician and how one shall be recognized as such. It provides that any one shall be considered a legal physician, and required to apply for and to receive a license, after a successful examination, who holds himself out to the public as being able to diagnose human disease, who prescribes any form of treatment for the palliation, relief or cure of any physical or mental ailment, with the intention of receiving compensation therefor, or one who uses any title to indicate that he treats human diseases, or one who maintains an office for the diagnosis or treatment of disease. It also provides that any one who thus holds himself out as a physician and who does not possess a license shall be fined, on conviction, $50 to $300 and costs. This bill was passed by the house without amendment. It covers every phase of medical practice, and was modeled on the ideal medical bill, first suggested by Dr. Van Meter of Colorado. The senate amended the bill so that the osteopaths were to be exempted from examination in all questions relating to the administration of drugs and the treatment of disease. This amendment was concurred in by the house and the amended bill was sent to the governor for his signature, but the governor vetoed the bill.

### NEW JERSEY.

**New Hospital.**—The Jersey City Board of Finance has ordered the issue of bonds to the amount of $200,000 for a new city hospital. The construction is to be under the charge of the Board of Health.

**Hospital Examinations.**—An examination for the position of resident physician in the Atlantic City Hospital was held in the hospital building, May 6.——Examination for two positions on the resident staff of St. Joseph's Hospital, Paterson, was held at the hospital April 11.

**Donation to Trenton Hospital.**—Charles G. Roebling, head of the Roebling corporation in Trenton, has donated $20,000 to St. Francis Hospital, the income of which is to be used annually toward the running expenses of the institution. The money is invested so as to net the hospital $1,000 a year.

**Personal.**—Dr. Frank C. Henry, member of the assembly, has been appointed health officer of the port of Perth Amboy.——Drs. Paul L. Cort, Trenton, and Paul Traub, Bordentown, have been elected to the staff of Mercer Hospital, Trenton.——Dr. Daniel Jenifer, Loch Raven, Md., has been appointed resident physician at the Atlantic City Hospital.

**Medical Society Meeting.**—At the annual meeting of the Camden County Medical Society, April 25, Mrs. Lydia Mecray presented to the society a portrait in oil of the late Dr. Alexander Mecray. The following officers were elected: President, Dr. William A. Westcott, Berlin; vice-president, Dr. Joel W. Fithian, Camden; secretary, Dr. Paul M. Mécray, Camden; treasurer, Dr. Sylvan G. Bushey, Camden; historian, Dr. Alfred Cramer, Camden; reporter, Dr. Ezra B. Sharp, Camden; censor, Dr. Duncan W. Blake, Gloucester City, and trustee, Dr. H. Genet Taylor, Camden.

## NEW YORK.

**Sanatorium Burned.**—Verona Springs Sanatorium, owned by Dr. Gilbert N. Lehr, Rome, was destroyed by fire, April 21, with a loss of $25,000.

**Albany Medical College** held its seventy-fourth annual commencement exercises, May 2, graduating a class of 53. Dr. Hermon C. Gordinier delivered the address of welcome, and Hon. Judson S. Landon delivered the address of the day.

**Osteopathy Bill Defeated.**—Senator Davis' bill regulating osteopathy was defeated by a very close margin of 2 votes. As he promised to introduce it again later it behooves the medical profession to watch and guard this most pernicious class legislation.

**Alumni Clinics.**—A feature of this year's meeting of the Alumni Association of the University of Buffalo, aside from the scientific papers and the annual banquet, was a well-arranged series of clinics given May 4 and 5, at various hospitals, especially for the benefit of the alumni.

**Hospital Notes.**—Malone Hospital Association has been incorporated "to erect and maintain a hospital for the reception and treatment of suitable medical and surgical patients." ——The new hospital in connection with the Orleans County Almshouse, Albion, erected at a cost of $25,000, has been completed.

**Work of the Legislature.**—The bill abolishing coroners in the City of Greater New York passed the senate by a vote of 29 to 16.——The assembly has passed the bill abolishing the state boards of visitation of the state hospitals and restoring the local boards of management. Each local board will consist of seven members, two of whom are women, and will be appointed by the governor.——After a hard fight the senate, by a vote of 24 to 19, defeated the bill placing the osteopaths under the jurisdiction of the State Board of Regents and compelling all masseurs to pass an examination.——Another bill passed by the senate provides that any member of the State Lunacy Commission or medical inspector may visit any sanitarium or other institution to see if insane persons are confined in them.——The Fish bill has passed the assembly. This bill requires every person having charge of a milk-gathering station shall be licensed by the State Commissioners of Agriculture. The bill is designed to break up the practice of skimming milk, to get the cream, at stations where milk is received for shipment to New York.——The governor signed the bill authorizing New York City to cancel assessments against Manhattan Hospital for local improvements.——A bill has been introduced repealing the compulsory vaccination law by providing that a pupil in a public school need not submit to vaccination if a parent or guardian will submit an affidavit that such vaccination would endanger the health of the child. ——A bill has been presented to increase the pay of all inspectors of the Health Department, irrespective of the work performed. This measure has been denounced by the secretary of the City Club.

### New York City.

**New Milk Laboratory.**—Nathan Straus has purchased property on East 32d Street on which he will erect a new laboratory for the pasteurization of milk for the poor of the city. Work will be begun on the new building June 1.

**Personal.**—Dr. L. Pierce Clark has been appointed consulting neurologist at the Craig Colony for Epileptics, Sonyea.—Dr. Silas C. Blaisdell, Brooklyn, had his right leg fractured, April 23, when his automobile collided with an electric car.

**Contagious Diseases.**—There were reported to the sanitary bureau for the week ended April 22, 356 cases of measles, with 16 deaths; 314 cases of tuberculosis, with 189 deaths; 294 cases of diphtheria, with 42 deaths; 212 cases of scarlet fever, with 12 deaths; 111 cases of cerebrospinal meningitis, with 104 deaths; 15 cases of typhoid fever, with 7 deaths; and 61 cases of chicken-pox.

**Sloane Maternity Statistics.**—Among the first 15,541 confinements there was a fetal mortality for induced labor in contracted pelves of 21 per cent.; for medium forceps in contracted pelves 20 per cent., and for high forceps operations performed for contracted pelves 57.6 per cent. Where version was performed for pelvic deformity, the fetal mortality was 46.3 per cent. In 5 symphysiotomies, one baby was stillborn and two mothers died from sepsis, a maternal mortality of 40 per cent., and an infant mortality of 20 per cent. The records show that 56 craniotomies have been performed for pelvic obstructions.

## OREGON.

**Personal.**—Dr. Kenneth A. J. Mackenzie, Portland, has been appointed medical director of the Lewis and Clark Exposition.

**Dr. Mackenzie Weds.**—Dr. Kenneth A. J. MacKenzie, Portland, chairman of the Committee of Arrangements for the coming session of the American Medical Association, was married, April 26, to Mrs. R. E. Brown of Spokane, Wash.

**New Building for Sanitarium.**—A new building is being erected at Mount Tabor for the Crystal Springs Sanitarium, of which Dr. Henry W. Coe has been president for the last 12 years. Dr. Robert L. Gillespie is resident medical director and Dr. William House, resident physician.

**Hospital for Fair.**—An emergency hospital is under construction on the exposition grounds, near the Forestry building. The structure will be one story in height, and will contain about ten rooms. Two trained nurses and two house surgeons will be in charge under the supervision of the medical director.

**Health Board Changes.**—At the meeting of the State Board of Health, March 21, Dr. Andrew C. Smith, Portland, was reelected president; Dr. E. Barton Pickel, Medford, was elected vice-president, and Dr. Robert C. Yenney, Portland, secretary and State Health Officer, vice Dr. Woods Hutchinson, resigned.

**Colleges Send Forth Graduates.**—The commencement exercises of the medical department of the University of Oregon, Portland, were held April 17. A class of 27 was graduated. Hon. M. C. George delivered the annual address. Dr. George B. Story delivered the charge to the class, and President P. L. Campbell of the university, conferred the degrees.——On March 31, a class of 7 was graduated from the Medical Department of Willamette University, Salem. Dr. Walter T. Williamson, Portland, delivered the address to the graduates and President Coleman of the university awarded the diplomas.

## PENNSYLVANIA.

**Smallpox.**—Fannett township, Franklin County, is under quarantine on account of 50 cases of smallpox.——The epidemic at Paxtang is said to be over.

**Personal.**—Dr. David S. Quickel has been made president of the York Haven Board of Health.——Dr. J. D. Hogue has been appointed resident physician at the Altoona Hospital.——Dr. Thomas B. Weaver, Allentown, has been selected as resident physician of St. Luke's Hospital, South Bethlehem.——Dr. Frank Swartzlander has been elected president of the Doylestown Board of Health.

**Again Expelled.**—Dr. James R. Care, Norristown, who was expelled from the Montgomery County Medical Society, who appealed to the County Court, alleging that the action of the society was irregular and without cause, and who was sustained and ordered reinstated, tendered his resignation; it was not accepted, as charges had been preferred against him, and he was again expelled, the cause assigned being the rules relative to dues.

**Bills Approved.**—The bills creating a department of health with a commissioner at its head at a salary of $10,000, appropriating $50,000 to be used as an emergency fund by the department for the suppression of epidemics in the next two years were signed and approved by Governor Pennypacker, April 27. The bill abolishes the State Board of Health and advises the governor to appoint an advisory board of five physicians, and one civil engineer to assist the Commissioner of Health. The commissioner is authorized to apportion the state in 10 districts for the registration of vital statistics, and to appoint an officer for each district at an annual salary of $2,500. The bill also gives the commissioner control of the streams of the state, except waters pumped from coal mines or tanneries, and authorizes him to establish sanitary regulations for the state.——The bill prohibiting the use of preservatives and harmful coloring matter in fruit syrups was also approved and signed by the governor.

### Philadelphia.

**Philadelphia, Not Baltimore.**—The news item entitled "Diphtheria Statistics," which appeared in last week's issue under the head of "Baltimore," should have appeared in the news from Philadelphia, to which the statistics refer.

**Health Report.**—The total number of deaths reported for the week reached 552, an increase of 97 over the number reported last week, and a decrease of 39 over the number reported during the corresponding period of last year. There was a decided increase of typhoid fever, which is spread throughout the city. There were 289 cases of typhoid fever reported for the week, with 20 deaths, as compared with 149 cases and 10 deaths for the previous week. The principal causes of death were as follows: Typhoid fever, 20; tuberculosis, 70; cancer, 18; apoplexy, 26; heart disease, 67; acute respiratory diseases, 73; enteritis, 14, and nephritis, 45. The total number of contagious disease cases reported for the week were 380, with 24 deaths, as compared with 358 cases and 22 deaths for the previous week.

**Personal.**—Dr. Edward E. Montgomery and Dr. S. Lewis Ziegler were guests of honor at a banquet given by the Sigma Chi Fraternity of the Medical Department of the University of Pennsylvania, May 4.——Dr. Horatio C. Wood delivered a lecture before the Academy of Medicine, Columbus, Ohio, April 24, on "Proprietary Therapeutics." A banquet was given in his honor after the lecture.——Dr. Charles H. Frazier addressed the York Alumni Association of the University of Pennsylvania at the annual banquet, April 27.——Dr. Albert C. Sautter sailed for Europe April 27.——Dr. Adolph Koenig of Pittsburg, president of the state association, was the guest of honor at a reception given by the Medical Club of Philadelphia, April 28.——Dr. George Y. MacCracken, who was reported last week in The Journal to have sustained a fracture of the patella, was operated on in the German Hospital for this condition.

**Must Support Rich Insane.**—It is estimated that over $100,000 a year will be saved by this city under the decision handed down by Judge Beitler, to the effect that the Quarter Sessions Court has the power to commit for contempt any person not complying with the order to pay $1.75 for the support of a relative in a state insane hospital. It is also stated that even a larger sum can be collected from persons well to do, who have paid nothing for relatives kept as paupers in the insane hospitals in some cases for a period of many years. The decision was based on a rule against Henry M. Tait, to show cause why an attachment should not issue for his failure to obey an order made by the court to pay $1.75 per week for the support of his wife. Judge Beitler, in his opinion, says: "Margaret M. Tait was committed to the State Hospital at Norristown in 1893. Since that time the county of Philadelphia has been paying for her maintenance at the rate of $1.75 per week. On September 24, 1904, this court made an order on the defendant that he pay the county of Philadelphia $1.75 for the maintenance of his wife. This order the defendant had never complied with. The question is, can he be attached for failure to obey the court's order, or is the city confined to suits from time to time to collect from him the money owing. The act of May 21, 1889, provides that the expense of the care and treatment of the indigent insane in the State Hospital for the Insane is hereby fixed at the uniform rate of $1.75 per week for each person charged to the respective counties, or poor districts from which the insane shall come, and the excess over this sum shall be paid by the state. It is under this act that the charge is made by the trustees of the hospital for the care and treatment of the wife of the defendant. The act of April 13, 1867, provides that if any husband shall neglect to maintain his wife it shall be lawful for any magistrate to issue his warrant for his arrest and bind him over. The court may make an order that the husband pay such sum as shall be reasonable for the support of his wife. It is not apparent why a husband whose wife is in a state hospital and for whose care the county is compelled by law to pay $1.75 should not under this act be ordered to pay at least that much for her. That the order of the court for the payment may be enforced by attachment can not be doubted. In the case before the court, the husband has been ordered to pay $1.75 for the support of his wife. He has refused. The court making the order was satisfied of his ability to pay. The evidence taken on the rule shows that he is still able to pay the sum. He is liable to be attached for his refusal to comply with the court's order. The rule is, therefore, made absolute."

## RHODE ISLAND.

**Gives Up Practice.**—Dr. Nelson Perrin, Olneyville, Providence, has given up practice on account of ill health and has retired to his farm near Pawtucket.

**State Sanatorium Appropriation.**—The lower house has passed the bill establishing a state sanatorium for tuberculosis and has appropriated $48,000 for its establishment.

**Appropriation for Isolation Hospital.**—The common council of Providence has appropriated $175,000 for a new city hospital for contagious diseases, and $21,940 for a site for the hospital, containing more than 14 acres and located at Chalkstone and River avenues.

## SOUTH CAROLINA.

**Offers Site for Hospital.**—John H. O'Neale has offered Greenville a site for a city hospital, outside the city limits and two miles from the center of the city.

**Medical Examiners Elected.**—At the meeting of the South Carolina Medical Association the following medical examiners were elected: First district, Dr. Walter P. Porcher, Charleston; third district, Dr. R. Andral Bratton, Yorkville, and fifth district, Dr. Samuel C. Baker, Sumter.

**Personal.**—Dr. Francis L. Frost has been made health officer of Charleston, vice Dr. J. Mercier Green.——Dr. William D. Crum has been confirmed by the senate as collector of customs at Charleston.——Dr. Pinkney V. Mikell, Columbia, has so far recovered from his recent operation for appendicitis that he has been removed from the hospital to his home.

**Large Class Graduates.**—The Medical College of the State of South Carolina, Charleston, held its seventy-fifth annual commencement exercises April 5. A class of 27 was graduated. Dr. Allard Memminger welcomed the assembly on behalf of the faculty and presented the report of the dean; Major Theodore G. Barker, president of the board of trustees, conferred the degrees, and Hon. M. L. Smith, Camden, delivered the address to the class.

**State Association Meeting.**—The South Carolina Medical Association assembled for its fifty-seventh annual convention at Greenville, April 11. The visitors were welcomed on behalf of the city of Greenville by Major Mahon, and by Dr. Thomas T. Earle on behalf of the Greenville County Medical Society. The annual address was delivered by Dr. John H. Musser, Philadelphia. The address of the president, Robert Wilson, Jr., Charleston, laid especial stress on the necessity for action against illegal practitioners throughout the state. The association decided to issue a monthly journal instead of the annual transactions heretofore published, and Drs. Robert Wilson, Jr., T. Prioleau Whaley and Charles P. Aimar, all of Charleston, were named as editors. The election of officers resulted as follows: President, Dr. Davis Furman, Greenville; vice-presidents, Drs. Stewart W. Pryor, Chester; Crown W. Torrance, Union, and David B. Frontis, Ridge Spring; secretary, Dr. T. Prioleau Whaley (re-elected); treasurer, Dr. Charles P. Aimar (re-elected), and councilors, Drs. Edward F. Parker, Charleston, first district; Theodore G. Croft, Aikin, second district; Orland B. Mayer, Newberry, third district; J. Wilkinson Jervey, Greenville, fourth district; R. Andral Bratton, Yorkville, fifth district; Frank H. McLeod, Florence, sixth district, and W. P. Moorer, Georgetown, seventh district. The association decided to meet in 1906 at Columbia on the third Wednesday in April.

## TENNESSEE.

**Senate Downs Osteopath Bill.**—The act providing for a state board of osteopathic examiners was defeated on third reading by the senate March 29.

**Fire at State University.**—The recent fire at the University of Tennessee, Nashville, damaged the clinical building to the extent of about $6,500. The building will be restored in time for the opening of the next term.

**Temporary Hospital.**—The members of the faculty of Tennessee Medical College, Knoxville, who recently withdrew from that institution, and are having a new hospital built, have secured temporary hospital apartments in the Harris building.

**Smallpox Conditions.**—At the meeting of the State Board of Health, April 4, the secretary reported that during the past six months there had been reported 2,052 cases of smallpox, a reduction of 434 as compared with the previous half year. Maury County reported 321 cases, Montgomery County 183 cases, and Shelby County 173 cases.

**Personal.**—Dr. John W. McQuillan, Chattanooga, has been expelled from the Chattanooga and Hamilton County Medical Society on account of his connection with the O'Neil Electric Ray Institute.——Dr. James J. Neely, superintendent of the Western Hospital for the Insane, Bolivar, was fined $50 and costs for failing to obey a summons of court.

**Commencements.**—The University of Nashville Medical Department graduated a class of 72, March 31, at its fifty-fourth annual commencement. Dr. William G. Ewing delivered the faculty address and Chancellor James D. Porter conferred the degrees.——The Medical Department of the University of Tennessee, Nashville, held its thirtieth annual graduating exercises April 3. Dr. Paul F. Eve delivered the charge to the graduating class, which numbered 33; Adjutant-General Harvey H. Hannah delivered the address of the evening, and Dr. Brown Ayres, president of the university, conferred the degrees.——

Vanderbilt University Medical Department, Nashville, conferred degrees on a class of 35 at its annual commencement exercises, April 3. Dr. John T. Altman delivered the charge to the class, and Rev. George A. Gowen the address of the evening on "Truth Triumphant," and Chancellor J. H. Kirkland awarded the diplomas.——A class of 39 was graduated from Chattanooga Medical College, the Medical Department of Grant University, April 3, at the close of the sixteenth annual course of instruction. Dr. Henry Berlin delivered the faculty address and Dean Hooper conferred the degrees.

## GENERAL.

**Banquet to Dr. Osler.**—A farewell banquet was given to Dr. William Osler in New York City, May 2, an account of which will appear in the next issue of The Journal.

**Special Ship to International Medical Congress.**—Dr. Charles W. Fassett, St. Joseph, Mo., is making arrangements to charter a first-class steamer to carry the American delegates to the International Medical Congress at Lisbon in April, 1906.

**American Roentgen Ray Society.**—The sixth annual meeting of this society will be held at Baltimore, September 28-30. The papers for the first day will deal with *x*-ray diagnosis, and those of the second and third days, therapeutics. There will be an evening exhibit of lantern slides which promises to be extremely interesting. Dr. Russell H. Boggs, Pittsburg, Pa., is secretary.

**American Gastro-Enterological Association.**—At the eighth annual meeting held at the Academy of Medicine, New York City, April 24-25, 1905, the following officers were elected for the ensuing year: President, Dr. H. W. Bettmann, Cincinnati; vice-presidents, Drs. S. W. Lambert, New York City, and John P. Sawyer, Cleveland; secretary and treasurer, Dr. Charles D. Aaron, Detroit; councilors, Drs. William G. Morgan, Washington; A. L. Benedict, Buffalo, and J. Kaufmann, New York.

**National Association for the Study and Prevention of Tuberculosis.**—The first annual meeting of this association will be held at the New Willard Hotel, Washington, D. C., May 18-19, 1905. The present officers of the association are: President, Dr. Edward L. Trudeau; vice-presidents, Drs. William Osler and Herman M. Biggs; treasurer, Surgeon-General George M. Sternberg; secretary, Dr. Henry Barton Jacobs, 11 Mount Vernon Place, west Baltimore.

**Health Report of the Philippine Islands.**—The report of the Board of Health of the Philippines for November, 1904, states that there were 666 births in Manila during that month. Of these 349 were males and 317 females, a birth rate of 36.91 per 1,000. There were 1,048 deaths during the month, of which 957 were residents and 91 transients. Infantile convulsions caused 353 deaths, the greatest number from any one cause; tuberculosis caused 102 deaths and meningitis 30. There were 96 deaths among children under 30 days of age, and 490 between 1 month and 1 year. There were no deaths during the month from either smallpox or bubonic plague.

## CANADA.

**Winnipeg Hospital Report.**—For the week ending April 22, 279 patients were treated in the wards of the Winnipeg General Hospital, of whom 194 were men, 69 women and 16 children. There were 110 out-patients treated.

**Ontario Board of Health.**—At the regular quarterly meeting of the Ontario Board of Health in Toronto the past week, the report of the secretary, Dr. C. A. Hodgetts, stated that there had been 500 deaths from tuberculosis in the province of Ontario for the first quarter of 1904. Dr. Hodgetts suggested provisional treatment in dispensaries until such times as sanatoria are established fit to cope with the ravages of the plague. The report also strongly urged the disinfection of sleeping cars. At the next regular meeting, the question of the government creating a separate department of public health will be discussed.

**Dr. Charles O'Reilly Resigns.**—Dr. Charles O'Reilly, medical superintendent of the Toronto General Hospital for twenty-nine years and a half, has resigned, to take effect at the end of June. Dr. O'Reilly was appointed in 1876, and has built up the hospital until to-day it is the largest hospital in the Dominion of Canada, having over 400 beds. During his tenure of the office over 100,000 patients have passed through the institution, and there have been 4,000 births in the maternity branch. Several years ago he was instrumental in having established in the very heart of Toronto the emergency branch which annually attends to 2,500 emergency cases. Dr. O'Reilly will travel abroad for two or three years with his son, Dr. Breffney O'Reilly.

**Ontario Hospitals Association.**—The annual meeting of this organization was held in Toronto, April 12, and a deputation waited on the premier to ask for a raise of the government grant from 50 to 75 cents per diem. The total government grant to the various hospitals in Ontario amounts to $110,000. The statistics for the Ontario hospitals show that during 1904 39,223 patients were treated, as against 35,912 during 1903. The total revenue of all these hospitals in 1904 amounted to $844,881, including the government grant, which would be about 17 cents each day for each patient entitled to receive it, while the actual average cost was 89 cents. Mr. Edward Gurney, Toronto, was elected president, Dr. Charles O'Reilly, vice-president, and Dr. John Ferguson, Toronto, secretary-treasurer.

## FOREIGN.

**Plague in Chile.**—Bubonic plague is reported to be causing many deaths in the city of Pisagua, Chile.

**Belgian Congress of Professional Medicine.**—The physicians of Liège are issuing invitations to a national congress to meet there in August to discuss questions affecting the material and ethical interests of the profession. The project is being greeted with much enthusiasm.

**Prohibition of Absinthe in Belgium.**—Our French exchanges comment with envy on the recent drastic decree passed by the legislature in Belgium which prohibits the manufacture, transportation and sale by wholesale or retail of the liqueur absinthe. The bill was passed by 127 yeas to 3 nays, 2 members not voting.

**German Laryngological Association.**—The first biennial meeting of this association is to be held at Heidelberg June 13. It was organized last August by the efforts of Moritz Schmidt, who convinced the various local and provincial laryngologic societies of the great benefits to be realized by combining all the laryngologists of Germany, Switzerland and Austria into a single comprehensive association. It does not conflict in any way with the aims and autonomy of the various local societies, but merely supplements them. The opening address at the approaching meeting is to be by B. Fraenkel of Berlin on "The Future of Laryngology." Dr. Avellis of Frankfurt a. M., Bockenheimer Anlage 48, is secretary. Membership dues are 3 marks or about 75 cents.

**Thirty-fourth German Congress of Surgery.**—This congress met at Berlin April 26 to 29, the principal attraction being Bier's application of congestion hyperemia to the treatment of acute inflammations, as already described in these columns on page 1075. He gave daily demonstrations of its action at von Bergmann's clinic which was thronged by visiting physicians and surgeons. Appendicitis was, of course, one of the leading topics, followed by addresses and discussions on "Functional Diagnosis of the Kidneys" and "Kidney Extirpation," "Postoperative Pneumonia" and "Treatment of Fractured Patella." Krönlein's orbital resection was also demonstrated, and Killian's tracheo-bronchoscopy. Professor R. U. Krönlein of Zurich was the president of the congress.

**Fourth German Congress of Orthopedic Surgery.**—This congress immediately preceded the congress of surgery mentioned elsewhere. Over 40 addresses or communications by prominent orthopedists were on the program, and a number of others were presented later. Spitzy described his later experiences with plastic operations on nerves, and Werndorff his new method of diagnosis of joint affections. Drehmann of Breslau discussed the deformities that follow joint affections in early infancy and Bum of Vienna the bloodless treatment of ankylosis. The principal theme discussed was the "Mechanics of Scoliosis," the main addresses being by Lovett of Boston, Schulthess of Zurich and Schanz of Dresden, with further communications on "Hysteric Scoliosis" by Hoborka and Muskat. Stein of Wiesbaden described the technic of photographic measurement of scoliosis.

**A Physician Appointed Cabinet Minister in Spain.**—Our Madrid exchange, the *Siglo Medico*, appears in gala dress in its issue for April 15. The rejoicing is on account of the fact that for the first time in thirty years a physician has been appointed a member of the national cabinet. More than this, the physician in question is Don Carlos M. Cortezo, one of the three physicians who own, edit and publish the *Siglo Medico*. Dr. Cortezo was appointed chief of the public health department six years ago, and for the last year or so has been president of the International Association of the Medical Press. April 8 he was appointed "minister of public instruction and fine arts," and the entire medical profession in Spain is delighted at this distinction conferred on one of its members. The *Siglo Medico*, by the way, suggested recently a novel mode of congratulating Ramon y Cajal on his recent honors. It proposed that on a given date, May 1, every physician throughout Spain should send a postal card to the illustrious histologist, with a few brief words of appreciation. May 1 was selected, as it is a kind of "labor day" in Spain, and it is well known that Cajal works far more than the regulation eight hours a day.

**Twenty-second German Congress of Internal Medicine.**—None of our German exchanges has yet commenced its report of this congress, which was held at Wiesbaden, April 12 to 15, but the Paris *Semaine Médicale* for April 19 devotes thirteen columns to a full account of the proceedings. The principal topic was "Heredity," with addresses by Ziegler of Jena and Martius of Rostock, and reports of interesting experimental work by others. Ziegler described the biologic importance of the fact of fecundation and the progress realized of late years in our knowledge of the chromosomes which are of primordial importance for heredity. The chromosomes always form groups of four, two derived from the father and two from the mother. Martius emphasized the necessity of discriminating between what is inherited and what is congenital. The entire heritage of a new individual is contained materially and virtually in the two germinative cells which blend in fecundation. When they have blended the fact of heredity is complete, and all that develops afterwards is due to external causes. The rôle of the father is terminated. Diseases can not be inherited, only the predisposition to them, and there is no such thing, he stated, as heredity of acquired morbid properties. The recent researches on immunity do not conflict with this view, as they establish that the antitoxins of the mother pass to the fetus by way of the placental circulation, and that there can be no question of their transmission by way of real heredity. The clinic forces us to accept an inherited individual constitutional factor as a point of lesser resistance. This morbid "determinant" may combine with other morbid determinants or may be compensated by others. Study of biology reveals always a vast current of healthy, vigorous life traversing humanity. The weak die off, but nature keeps the general standard of the race high, and we may well be optimists in regard to heredity. Lorand of Carlsbad remarked that heredity is influenced by the condition of the thyroid gland more than is generally recognized. The defective development of the offspring of syphilitic and malarial parents is due more to the inherited state of the thyroid than to anything else. Several speakers ascribed great importance to the "paralytic thorax" as producing conditions which invite tuberculosis. The angle of the manubrium with the body of the sternum is abnormally acute in this condition. Turban has noted in 100 families that when tuberculosis attacked the members it always selected the lung on the same side, confirming the assumption of a point of less resistance. Neuburger of Frankfurt stated that he had the clinical histories of a number of families for eighty years and more, as attended by his father-in-law and himself through four generations. His observation has convinced him that the predisposition to tuberculosis is inherited and not acquired. It may not manifest itself until late in life. He knows families in which all the members became consumptive after 60. The heredity of cancer is even more striking. Chronic nephritis, coronary arteriosclerosis and diabetes are likewise hereditary. He knows of entire families affected with exophthalmic goiter. A number of speakers reported symptomatic improvement and cure of leukemia under radiotherapy, but no one was able to relate a single permanent cure.

## LONDON LETTER.

### A Case of Intestinal Anthrax.

An example of the very rare intestinal form of anthrax, which has never previously been recorded in Great Britain, has been observed in Glasgow. A lead worker died from intestinal anthrax and careful inquiry was made as to the source of infection. His occupation was the grinding of white lead in refined linseed oil. In his work he came into contact with the following substances, which under varying conditions have been associated with outbreaks of anthrax: linseed oil, spent oak bark, tallow used for lubricating a machine, and waste with which he wiped his hands. The oil was excluded because it was refined and had, therefore, been exposed for hours to a high temperature. As to the spent bark, cases of anthrax have occurred in association with tan works, but they have arisen from hides before being submitted to the liming process. As the liming destroys the anthrax infection the spent bark could not be held responsible. The tallow had been refined at such a temperature as to make it free from anthrax. The waste was cotton and jute waste, which is not associated with anthrax. Moreover, no case had occurred at the works from which these four substances were derived. In common with others he had partaken of part of a pie and a steak, and the meat was traced to possible sources of origin, but no definite anthrax infection could be found. The anthrax bacillus, but not its spores, is readily destroyed by the gastric juice. The conclusion was reached that the man must have partaken of a portion of infected meat containing the spores, which the others escaped because they ate portions which did not happen to contain spores.

### The Confederation of the Medical Societies of London.

The proposal to confederate the medical societies of London, which has been reported previously in THE JOURNAL, is making considerable progress. Sir William Church, president of the Royal College of Physicians, presided at a large and influential meeting, at which the various societies were represented by their presidents. He gave a short historical survey of the various attempts which had been unsuccessfully made since 1808 to unite the societies. Those who are now promoting the union propose that a new central body which Sir William Church termed "The Royal Society of Medicine," should be established and that all the existing societies should be regarded as subdivisions of it. The idea is that the existing societies should not lose their individuality, but should be embraced and covered by the wing of the Royal Society of Medicine. Medicine at the present day is necessarily split up into a number of branches, which are in danger of becoming dissociated from general medicine. Anything that tends to keep up the connection between general medicine and the special branches is to be encouraged. It is proposed that there shall be two grades in the proposed society: fellows and associates. The fellows will join the Royal Society of Medicine on certain financial terms, which will give them the right of attending all the meetings of the included societies. The associates will consist of those who prefer to be members of one or more sections of the society and have certain advantages and privileges by belonging to the Royal Society of Medicine, such as the use of the library and all the rooms of the society. The separate sections will receive and consider their own communications as each thinks proper, and will publish monthly the papers, while the parent society will, with a strong publication committee, select from these communications and publish the results as the "Transactions of the Royal Society of Medicine." The proposal was warmly supported by Sir Frederick Treves, Sir Thomas Smith, Mr. Langton, Dr. Theodore Williams, Sir Douglas Powell and Sir William Broadbent. The latter proposed the following resolution, which was carried unanimously: "That the councils of the Medical, Royal Medical and Chirurgical, Pathological, and Clinical societies be invited to form, with the president of the Royal College of Physicians, the president of the Royal College of Surgeons and five others, a committee which shall make such inquiries as may be necessary and submit a scheme to the various societies for their consideration." He suggested that the Medical and Royal Medical and Chirurgical societies, as the oldest societies and as having property, should have two representatives each on the committee, and the Clinical, Pathological, Obstetrical and Epidemiological societies one each. With regard to the local medical societies in the outlying parts of the metropolis he thought that they ought to be invited to cooperate, but that it would be a great misfortune to interfere with their efficiency. There is more in the idea than amalgamation; there is a new creation, which will raise medicine to a higher plane.

# *Pharmacology*

### Not With Us.

We have printed abstracts of letters received from some of the leading manufacturing pharmaceutical houses which favored the movement recently undertaken to separate the good preparations, as far as is possible, from the fraudulent and secret nostrums with which physicians are flooded and which they are expected to prescribe for the sick under their care. Under the circumstances, we think it only fair to give the other side. We are especially constrained to give physicians a chance to read what Battle & Co. have to say, because they have sent the correspondence to various manufacturing pharmaceutical firms, and our readers should have the same favor shown them. With the correspondence they say: "We commend the above correspondence to your attention as showing the position we take in regard to the Council on Pharmacy and Chemistry of the A. M. A. We would like to hear any comments you have to make." The correspondence is as follows:

AMERICAN MEDICAL ASSOCIATION.
Council on Pharmacy and Chemistry.

Chicago, April 22, 1905.

Messrs. Battle & Co., St. Louis, Mo.

Gentlemen:—The Council on Pharmacy and Chemistry is now ready to take up "Bromidia," provided you wish to submit it to that body. *We take it for granted* that you received the announcement which we sent on February 28, and consequently *know the functions of this council.*

If you desire to submit the preparation, will you kindly forward five original packages, and also any information you may desire to submit to the council for its guidance? By referring to the tentative rules, as set forth in the announcement, you will readily see the scope of the information desired. If you send printed matter, kindly supply us with fifteen sets of each.

We *shall be pleased to hear from you* at your earliest convenience.

Very truly yours,
George H. Simmons, Chairman.

St. Louis, April 25, 1905.

Dr. George H. Simmons, Chairman,
103 Dearborn Ave., Chicago, Ill.

*Dear Sir*:—Yours of the 22d instant received and contents noted. In answer would say that we read very carefully the circular sent by the Council of Pharmacy and Chemistry, February 28. In regard to that and your request, will say: In the northern district of New York, United States Circuit Court, held in the court house at Utica, N. Y., May 3, 1887, Judge Alfred C. Coxe granted a temporary injunction restraining Byron Fenner of Westfield, N. Y., to "desist from printing, publishing or circulating in any book or formula hereafter to be issued by the defendant, his agents, etc., the word Bromidia or Bromidio in connection with the receipt now appearing in Fenner's Formulary, etc., etc." This injunction was made permanent June 7, 1887, the same judge presiding.

We don't recognize the right of any man or set of men to interfere with our property. We do not propose to submit any of our preparations to the so-called Council of Pharmacy and Chemistry. Furthermore, if we learn that the said Council of Pharmacy and Chemistry attempts to incorporate any of our preparations in the book referred to, we will ask for an injunction restraining any interference with our property.

Yours respectfully,
Battle & Co., Chemists' Corporation.
C. A. Battle, President.

We wish to assure Messrs. Battle and Company that it will not be necessary for them, under the circumstances, to get out an injunction to prevent the council from incorporating Bromidia in the proposed book. Indeed, the underlying principle on which the council is working is that until there is something more than the unsatisfying statement of the manufacturer concerning the composition of his "property," physicians ought not to "interfere" with that "property" by using it on an innocent public.

### Some Misconceptions Set Right.

The Council on Pharmacy and Chemistry has asked for criticisms of its plan. We may naturally reserve the right to criticise the criticisms. One that has been made seems to us particularly fallacious. We refer to the comments of a local medical journal which assert that the defects in the plan are as follows:

First, that the reform is made dependent on the voluntary co-operation of the manufacturers; second, that it proceeds on the novel assumption that the way to distinguish and punish the guilty is to compile a list of the innocent; third, that it would not vest authority in a legally irresponsible body which can be safely and effectively exercised only by the government.

To effectually answer the first point it is only necessary to call attention to the primary purpose of this council. This council is an advisory body to determine what articles may be ethically advertised in The Journal A. M. A. It is certainly optional with the manufacturers, etc., whether or not they shall ask to advertise in the columns of The Journal. It, therefore, certainly must be optional with them whether or not they come up to the requirements laid down by The Journal. As a separate matter, but as a corollary, it is proposed to put the results of the decisions of this council in a book in order that the results may be accessible to others. It was taken for granted that interest would attach to the results of the work of this council because of the wide interest in the subject and because of the high standing of the members of the council.

Recommending the publication, not of a list of the innocent, but of a list of the guilty, we contend is contrary to the usual experience. In choosing foods, man selects the harmless substances and uses them. It is true that he condemns the deleterious substances when he finds them, but he does not hunt for them. The same is true in medicine. When a remedy is found to be unsuited for a certain condition the search is kept up for one which is suitable. The work of the council is primarily to place its approval on the products which it is safe for the profession to use and which, therefore, may be mentioned in The Journal's advertising pages. It is true that as harmful and fraudulent preparations are brought to its notice they will be exposed, but that is a secondary matter. The third objection is that the method is wrong; that the proper course would be to secure government legislation against products which have been analyzed and proved to be objectionable. The throttling of the pure food bill in the United States Congress—in spite of the crying necessity for a law of this kind and in spite of the pronounced agitation in its favor throughout the country—is sufficient answer to this proposition. It may not be out of place to say that the anxiety shown by some papers lest the council be swamped with damage suits is uncalled for. When the council has anything to say in condemnation of any preparation it will be because of absolute knowledge of what is said, and the blow will be from the shoulder.

### The Use of Proprietary Medicines in Great Britain.

In a recent paper presented to the Western Chemists' Association,[1] London, Eng., Mr. Peter MacEwan gave a summary of an analytical study of upward of 1,700 prescriptions, sent to him by chemists from various cities and towns in the United Kingdom. The investigation itself had been undertaken for the purpose of ascertaining to what extent proprietary medicines were being prescribed by medical men in Great Britain. The resulting figures ranged from 2 per cent. in Newcastle-on-Tyne, to more than 20 per cent. in some of the larger cities. Taking all of the replies the total would appear to indicate that in about 10 per cent. of the prescriptions written in Great Britain, proprietary medicines are included among the ingredients. These resulting figures, particularly when compared to the figures recently published in this country by Dr. M. Clayton Thrush,[2] reflect credit on the practices of our British fellow practitioners, and would suggest the conclusion that the average medical man in Great Britain recognizes the folly of using medicinal preparations about which he knows little or nothing and is content to use official or pharmacopeial medicines. This conclusion is further justified by the comments of some of the pharmacists who contributed prescriptions. These comments and opinions would appear to indicate that British physicians are prescribing proprietary preparations much less than is the case on this side of the water.

### Unpaid Peddlers of Secret Nostrums.

Evidently there must be a considerable number of physicians in the United States who sell themselves cheaply. Last week we printed in this department a description of a scheme that a St. Louis chemical company had for getting the doctors to work for them for very small pay. This week we have to record another St. Louis firm in the same delightful business. This scheme comes in the form of a triple postal card arrangement, on which the following liberal offer is made:

*Dear Doctor: In order to give you an opportunity* to further test the properties of our MANOLA TONIC, we make you the following liberal proposition: *Fill out the attached* cards Nos. 1 and 2, mail No. 1 to US and hand Nos. 2 and 3 TO YOUR DRUGGIST. Upon the receipt of the order for *1 dozen* MANOLA TONIC from your druggist we will send with his order 3 full size bottles of MANOLA TONIC free of charge to YOU.

Yours truly,
THE MANOLA COMPANY.

Card No. 1 is directed to the company, and the doctor is to fill in the name of his druggist, sign his name and put on the stamp. (The company ought to be willing to furnish the stamp.) On this card is this statement:

Gentlemen:—I have this day accepted your offer through Mr. ——————————Druggist.

Card No. 2 is as follows:

Mr. ——————————, Druggist:
*Please order of the Manola Company*, St. Louis, Mo., 1 *dozen* MANOLA TONIC, all of which I agree to prescribe in my *prac-*

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1. Chemist and Druggist, London, Eng., April 1, 1905.
2. The Journal A. M. A., Jan. 4, 1905.

tice. By filling out the attached card No. 3 and forwarding it to the above company, they will forward me, with your order, 3 full-size bottles MANOLA TONIC free for clinical purposes.

Yours truly,

——————M.D.

In this instance the poor doctor either has to put this card in an envelope and put on a two-cent stamp, or carry it to the druggist himself. As he will probably be a cheap doctor in any event, he will no doubt save the two cents.

*Card No. 3 is as follows:*

Date ——————19

MANOLA COMPANY, St. Louis.

Gentlemen: Please ship (me us), as per your offer, 1 dozen MANOLA TONIC at $8.50 per dozen. ¼ dozen MANOLA TONIC free, for Dr. ——————.

(Signed) ——————Druggist.

Ship through my jobber.

Here we have the doctor not only used as an unpaid peddler for a secret remedy, but also as a club to make the druggist fill up his shelves with the stuff. Of course, the three bottles the doctor gets for his labor are to be given to his patients, who will thus become acquainted with what the preparation is good for, and will then buy it direct.

Certainly, it can not get very much worse, unless the nostrum manufacturers get the doctor to go on the street and peddle their stuff on a percentage.

### FURTHER COMMENTS QUOTED.

We submit below some expressions of opinion from various publications which discuss the general subject of secret nostrums and the plan of the Council on Pharmacy and Chemistry:

Medical Times (April): "This is indeed a subject vital to every physician who is conscious of his own dignity of character; who is anxious to resent every factor—and how many such there are!—tending to degrade the profession with which he has become affiliated; who, while being of all humanitarians the most self-abnegating, is not ready to become a cat'spaw by means of which better business men than he shall accumulate their millions; and who is sufficiently scientific to realize that he can not in all conscience prescribe for a patient's malady a remedy in the nature of which he does not and is not permitted to know. . . . In one year $62,000,000 has been expended on patent medicines in the United States, enough to give every practitioner in the country a yearly income of $2,000. How could such results be brought about if many physicians did not ingenuously help by their laudatory office conversations with the agents of these medical firms and by their complacent distribution of samples to patients? In the face of such facts as these all talk of love of humankind, altruism, self-abnegation and the like, becomes cheap and nauseating. There are many physicians who get from the subtly deriding world in return for their labor and their sweat, praise of this sort—and little else. It appears to us that all such buncombe should give place to homely common sense. It is more dignified for the medical man to earn money for himself and his own, rather than for others; and to require a just return for his work. All this is by way of introduction to the excellent proposals made by The Journal."

Washington Medical Annals (March): "It will no doubt be conceded that the advertising pages of a medical journal should receive the same careful editorial scrutiny that is given to the subject matter proper of the journal itself. . . . There are, of course, many advertisements as to the fitness or propriety of which there can be no question. The chief difficulty has been with regard to patented and proprietary pharmaceutical products. Talk as we may of the ethics of the question, a large proportion of the profession has given evidence that it will prescribe what it chooses, regardless of these considerations. This phase of the question is not to be summarily dismissed. Results we must have, and the man who is in earnest will get them by whatever means offered. It is certainly unfortunate that any method or means for the relief of human suffering should be restricted by mere commercial greed. On the other hand, it must be admitted that not every preparation or combination of healing agencies can be compounded extemporaneously at the nearest pharmacy and in the best possible form for administration. It is worth something to be able to rely with confidence on the means we are using, and the laborer who has given us confidence is worthy of his hire. . . . We may expect much of interest and profit from the work of this council; its personnel bespeaks the confidence of the whole profession."

## *Correspondence*

### Conservation of Blood in Operations on Anemic Patients.

Minneapolis, May 1, 1905.

*To the Editor:*—In performing a perineorrhaphy on a very anemic woman recently, I used a one to one thousand solution of sterilized adrenalin chlorid in the vagina and a practically bloodless operation was performed. The mucous membrane of the vagina blanched almost immediately and the anesthetizer reported a marked improvement in the heart's action. Healing occurred without any drawback. Have any similar cases been reported? If so, are there any contra-indications?

Lester W. Day.

### A Reminder of "Auld Lang Syne."

New York, April 25, 1905.

*To the Editor:*—Through the courtesy of Mr. James Douglas of New York I have a copy of the papers relating to the apprenticeship of his father when he became a student of medicine. Notwithstanding that this was made in the early part of the last century, the paper is so curiously quaint and interesting that I send a copy of it to you for publication in The Journal. Few in the present day realize the great changes that have taken place in less than one hundred years.

Thomas Darlington, *Commissioner of Health.*

"THIS INDENTURE Made the third Day of October in the year of our Lord one thousand eight hundred and thirteen between The Reverend George Douglas of Penrith in the county of Cumberland and James Douglas of the same place the son of the same George Douglas of the one part and Thomas Law of the same place surgeon and apothecary of the other part Witnesseth That the said James Douglas of his own free Will and by and with the License and consent of the said George Douglas his natural and lawful father and guardian (testified by his being a party to and signing and sealing these presents) Hath put placed and bound himself Apprentice to the same Thomas Law to learn and be taught the trade art mystery or business of a surgeon apothecary and man-midwife which he the said Thomas Law now practices and to continue with and serve him as an apprentice from the day of the date of these presents for and during and unto the full end and term of five years from thence next ensuing and fully to be completed and ended And the said George Douglas Doth for himself his Heirs Executors and Administrators and for each and every of them and for the said James Douglas his son covenant promise and agree to and the said Thomas Law his executors administrators and assigns by these presents in manner and form following (that is to say) That he the said James Douglas shall and will diligently and faithfully serve him the said Thomas Law his secrets keep his lawful commands do and perform Damage to his said Master he shall not do nor willingly permit to be done by others the goods of his said Master he shall not waste nor lend them without his consent to any he shall neither buy nor sell without his Master's leave Taverns Inns or Alehouses he shall not frequent At cards Dice or any unlawful games he shall not play fornication commit nor Matrimony contract nor from the service of his said Master Day or Night shall absent himself but in all things as an honest and faithful Apprentice shall and will demeen and behave himself towards his said Master and all his during all the said term of five years Also That he the said George Douglas shall and will during all the said term of five years provide and allow for the said James Douglas his son sufficient and proper meat Drink Wearing apparel Washing and Lodging And the said Thomas Law in consideration of the premises and for and in consideration of the sum of five shillings of good and lawful money of the said Kingdom Great Britain and Ireland current in England in hand well and truly paid by the said George Douglas at or before the signing and sealing of these presents The receipt Whereof is hereby acknowledged Doth for himself his heirs Executors and Administrators and for each and every of them covenant and agree and promise to and with the said George Douglas and James Douglas That he the said Thomas Law according to the best of his power skill and knowledge shall and will instruct or cause to be taught and instructed the said James Douglas in the said trade Art Mystery and business of a surgeon Apothecary and Man-Midwife and in all things Whatsoever incident and belonging thereto in such manner as he the said Thomas Law now or at any time hereafter during the said term of five years shall use practice teach or deal in the same In Witness Whereof the said parties to these presents have hereunto set their hands and seals the day and year first above Written.

Signed sealed and delivered (being first duly stamped).

George Douglas.
James Douglas.
Thos. Law.

In the presence of
Henry Law.
W. Jackson.
Penrith, Sept. 1st, 1818.

I hereby certify that James Douglas has faithfully completed his Apprenticeship to this day and that I give him the remainder of his service that he may visit his Father and Friends. Thos. Law."

## Association News

### Details of the Alaska Trip.

The Committee of Arrangements has arranged with the Alaska Steamship Company to handle the American Medical Association excursion to Alaska, and makes the following announcement: A round trip rate of $60.00 from Seattle has been obtained and the steamer *Jefferson*, a splendid vessel, designed and built especially for this route, will be used. She has spacious social halls and decks and every modern improvement to make the voyager comfortable. The cuisine is equal to that of the best first-class hotels. This trip is without equal anywhere. It is not an ocean trip in the usual sense, with its many unpleasant accompaniments of seasickness and stormy weather; but rather like a river trip amid a thousand islands and underneath beetling cliffs and snow-capped mountains, with just an occasional dash of old ocean as the vessel crosses some wider strait.

Without specifying in particular the various ports of call on the trip it can be said that all the points of interest on the Alaska route will be touched at between Seattle and Sitka. All applicants for reservations for the trip will be supplied with literature by the steamship company. The *Jefferson* will leave Seattle at 9 a. m. July 17, and returning will discharge at Tacoma July 28, thus consuming eleven days in the trip. She will touch at Vancouver on the return trip and if any of the excursionists desire to visit Victoria, they will be given tickets from Vancouver by way of Victoria to Seattle on the company's regular steamers. All intending to make this excursion are requested to send in their applications at once to the Committee of Arrangements, as the number already applying suggests the possibility that they may have to engage a second steamer.

The following quotation from the steamship company's "A Trip to Wonderful Alaska" may be of use in the selection of clothing for the trip. "Making preparations for a tour of Southeastern Alaska does not mean that one must provide himself with thicksoled shoes and fur robes. Pack your trunk with summer clothing, wear a Panama hat, and with a light overcoat as a protection in the cool evenings you are ready to depart on the voyage north."

The committee would also call attention to the Honolulu, Yokahama, and Hong Kong trips; they have had several applications, but not yet enough (20) to secure the reduced rates.

K. A. J. MacKenzie,
Chairman of the Committee of Arrangements.

### Missouri Valley Special to Portland.

Arrangements have been made for a special train to accommodate the physicians of Kansas City, St. Joseph and vicinity. It will leave Kansas City June 29, 6:10 p. m.; St. Joseph, 8:25 p. m.; Omaha, 11:30 p. m., and Lincoln, 1:20 a. m.; will arrive in Yellowstone Park Saturday morning, July 1, remaining there about a week, and in Portland Sunday evening, July 9. Another train will leave Kansas City, St. Joseph, Omaha, etc., on the evening of July 5, for those who wish to go direct to Portland. Stopovers in Seattle, Tacoma and other points will be allowed. Further particulars may be obtained from Dr. Charles Wood Fassett, St. Joseph, Mo.

## Marriages

Jay C. Knipe, M.D., to Miss Ruth D. Krauss, both of Philadelphia, April 24.

Jesse L. Mahaffey, M.D., to Miss Alice Fogg, both of Camden, N. J., April 26.

Aden C. Hart, M.D., to Mrs. Allie H. Chase, both of Sacramento, Cal., April 18.

David C. Burks, M.D., to Miss Eudora Belle Mallory, at Petersburg, Va., April 26.

Robert Conover Wilson, M.D., to Miss Louise Crepin Hoyt, both of Chicago, April 26.

Albert F. Henning, M.D., Chicago, to Miss Mary B. Meager, of St. Paul, Minn., April 26.

Gustav Schwyzer, M.D., to Miss Mary Robinson, both of Minneapolis, Minn., April 20.

Paul H. Ellis, M.D., Omaha, Neb., to Miss Lillian Covert of Council Bluffs, Iowa, April 21.

Jesse H. Chiles, M.D., Brooks, Iowa, to Miss Elzene A. Hall of Villisca, Iowa, April 13.

William Sturgis Thomas, M.D., to Miss Emma Rheinfrank, both of New York, April 25.

Harry Pickett Taylor, M.D., to Miss Mary Etta Smith, both of Flemingsburg, Ky., April 19.

Paul Monroe Pilcher, M.D., New York City, to Miss Mary Finley of Montclair, N. J., April 26.

Paul Barthalow, M.D., New York City, to Miss Anna Lewis Brice of Philadelphia, April 25.

Roger H. Dennett, M.D., Adamsville, R. I., to Miss Agema V. Wheeler, of Brooklyn, N. Y., April 12.

Abram F. Lumpkin, M.D., Amarillo, Texas, to Miss Maude Roland Gunn of Blossom, Texas, April 19.

William J. Blalock, M.D., Atlanta, Ga., to Miss Karoline Louise Kiene of Dubuque, Iowa, April 24.

James Marvin Salmon, M.D., Ashland, Ky., to Miss Charlotte Susan Seem of Bangor, Pa., April 27.

Olin Roscoe Bates, M.D., to Miss Flora Beals, both of Climax, Mich., at Battle Creek, Mich., April 19.

Thomas Joseph Stewart, M.D., Cherry Valley, Ark., to Miss Ella Gilliland Jordan of St. Louis, Mo.

Samuel Myers Deal, M.D., Columbia, S. C., to Miss Mary Littell Davis, at Indianapolis, Ind., April 19.

William J. McCausland, M.D., South Quincy, Mass., to Miss Gilliland of Tewkesbury, Mass., April 12.

George W. Fithian, M.D., Perth Amboy, N. J., to Miss Mary W. Stathem of Cedarville, N. J., April 19.

George Revis, M.D., La Fayette, Ind., to Mrs. Mary Hudlow of Fort Worth, Texas, at Indianapolis, April 19.

Theodore F. Heavenrich, M.D., to Miss Katherine Forrest Ballentine, both of Port Huron, Mich., April 18.

William Franklin Driver, M.D., Broadway, Va., to Miss Ida Valentine Trice of Flanagan's Mills, Va., April 19.

## Deaths

**Charles Smart, C.M., M.D.,** University of Aberdeen. Scotland, 1862, ranking assistant surgeon general of the United States Army, died in St. Augustine, Fla., April 23, after a long illness from cerebral hemorrhage, aged 64. Colonel Smart was a native of Scotland, came to New York immediately on his graduation, and at once entered the military service as assistant surgeon of the Sixty-third New York Infantry in the Civil War, was mustered out of the volunteer service April 15, 1864, became lieutenant and assistant surgeon in the same year; was made captain and assistant surgeon in 1866; was promoted to major and surgeon in 1882; to lieutenant colonel and deputy surgeon general in 1897, and received his final promotion to colonel and assistant surgeon general in 1901. After the war he served at many different points in the United Stated until he came to Washington in 1879 for duty with the National Board of Health, on which duty he continued until 1883. He was sent to Memphis, Tenn., and other fever-stricken cities in the South to investigate the water supplies, and conducted many other important investigations for the board. From 1883 to 1902 he was on duty in the office of the Surgeon General of the Army. During this period of service he compiled and edited the third medical volume of the Medical and Surgical History of the War of the Rebellion, and subsequently was disbursing officer of the Medical Department in Washington, and in charge of the Sanitary Division of the office. He was a member of the faculty of the Army Medical School from its organization in 1893 until his departure for the Philippines, and was its president subsequent to July 2, 1902. He served as a member of various boards, including examining boards for admission of candidates to the Medical Corps, board for preparation of hospital corps drill, and for Manual for the Medical Department, and board on emergency rations. He compiled and published a "Handbook for the Hospital Corps," which is still in use as a textbook on the subject. He represented the Medical Department of the Army at the meetings of the American Public Health Association in 1892, 1894, 1896 and 1897, and for many years was chairman of its committee on pollution of water supplies. In connection with the Act of March, 1887, organizing the hospital corps, he arranged for the system of examination for the appointment of hospital stewards and acting hospital stewards. In 1890 he was president of a board convened at Fort Leavenworth, Kansas, which provided a system of drill regulations and first-aid lessons for the hospital corps. In 1889 he organized the present identification system for deserters by means of outline figure cards. During the Spanish-American War he did important work inspecting the large camps and camp sites, notably those at Alger, Meade and Montauk. Besides his Handbook for the Hospital Corps of the U. S. Army and State Military Forces and many valuable papers in American Health Reports, General Smart was a frequent contributor to medical literature, especially to the Encyclopedic Medical Works. In the Reference Handbook of the Medical Sciences he wrote the articles on Air, Malaria, Miasm, Water, Quarantines, and Army Field Hospital Organization. General Smart had but recently returned from the Philippines, where he had been serving as chief surgeon of the Division since Nov. 30, 1902, a stroke of apoplexy having necessitated his being returned to this country, and subsequently placed on the retired list, with rank of brigadier general. General Smart was a member of the American Medical Association and of the Association of Military Surgeons of the United States, and was for many years Washington correspondent of, and an editorial contributor to, THE JOURNAL. He combined with brilliant scientific attainments a great capacity for hard work, together with an unfailing loyalty to duty. His death is a great loss to his corps, and to the medical profession in general.

**William Baggs Ulrich, M.D.** Philadelphia College of Medicine and Surgery, 1850, a member of the American Medical Association, one of the oldest practitioners of Chester, Pa., sometime president of the Medical Society of the State of Pennsylvania, and of the Delaware County Medical Society; surgeon of the Philadelphia, Wilmington and Baltimore Railroad; formerly chief of staff of Chester Hospital, died at his home in Chester, April 24, from complications following influenza, after an illness of three weeks, aged 83.

**Charles Henry Hertzog, M.D.** Western Pennsylvania Medical College, Pittsburg, Pa., 1896, a member of the American Medical Association: Medical Society of the State of Pennsylvania; Allegheny County Medical Society and the South Side Medical Society, Pittsburg; one of the incorporators of and a member of the surgical staff of St. Joseph's Hospital, and a director and member of the staff of the South Side Hospital, died at his home in Pittsburg, April 18, from scarlet fever, aged 34.

**Robert William Harper, M.D.** Tulane University of Louisiana Medical Department, New Orleans, 1852, formerly of Tallahatchie County, Miss., surgeon in the Confederate Army throughout the Civil War, and for many years a practitioner of Minter City, Miss., died at the home of his daughter in Memphis, Tenn., March 30, 1905, from organic heart disease, after an illness of six weeks, aged 76.

**Franklin H. Allen, M.D.** Medical School of Maine at Bowdoin College, Brunswick, 1877, a member of the American Medical Association, Massachusetts Medical Society, and Essex North District Medical Society, a prominent physician, and at one time an alderman of Haverhill, Mass., died at his home in that city, April 23, from diabetes after a long illness, aged 49.

**Leonidas S. Buchard, M. D.** University of California Medical Department, San Francisco, 1882, a member of the American Medical Association, and a prominent practitioner of Oakland, Cal., died at his home in that city, April 23, from typhoid fever, after an illness of two weeks, aged 50. The Alameda County Medical Association attended the funeral in a body.

**Isaac Newton Gard, M.D.** Medical College of Ohio, Cincinnati, 1834, organizer and for many years president of the first medical Society in Darke County, Ohio; a member of the state legislature in 1841; for 16 years one of the trustees of the Dayton State Hospital; the oldest resident of Greenville, died at his home in that city, April 24, from uremia, aged 94.

**Gideon A. Weed, M.D.,** Rush Medical College, Chicago, 1870, twice mayor of Seattle, Wash., for ten years a regent of the University of Washington; and organizer and first president of the King County Medical Society and one of the organizers of the Washington State Medical Association, died at Berkeley, Cal., April 22, after many years of invalidism, aged 72.

**William M. Edwards, M.D.** University of Michigan, Department of Medicine and Surgery, Ann Arbor, 1884, superintendent of the Michigan Asylum for the Insane, Kalamazoo for 14 years; a prominent alienist; died at the University Hospital, Ann Arbor, April 26, from chronic valvular heart disease, after an illness of more than a month, aged 48.

**Alexander Taliaferro Nelson, M.D.** Medical Department of the Columbian University, Washington, D. C., assistant physician at the Western State Hospital, Staunton, Va., a young man of fine promise, was accidentally shot and killed in Covington, Va., April 19, aged 32. He was a member of the Medical Society of Virginia.

**Walter Haigh Drane, M.D.** New York University, New York City, 1854, surgeon of the Twenty-Seventh Georgia Infantry C.S.A., in the Civil War, a member of the Confederate Veterans Medical Association, died at his home in Batesville, Miss., March 28, from heart disease, after an illness of two years, aged 73.

**William Henry Johnson, M.D.** Toronto University Medical Faculty, 1873, of Fergus, Ont., surgeon-lieutenant colonel in the Ontario Volunteers, councilor and reve and member of the county council, died at the home of his brother in Eramosa, Ont., April 18, after an illness of four months, aged 54.

**Hiram Barber, M.D.** Albany (N. Y.) Medical College, 1847; member of the legislature in 1848; some-time collector of internal revenue for the Twelfth District of Illinois; from 1880 to 1891 surgeon at the state penitentiary, Sing Sing, N. Y., died at his home in Ossining, N. Y., April 24, aged 85.

**William B. Beach, M.D.** University of Maryland School of Medicine, Baltimore, 1875, for many years postmaster of Eatontown, N. J., and a member of the board of education, died at his home in Long Branch, N. J., from cerebral hemorrhage, after a long illness, April 19, aged 54.

**John H. Hinton, M.D.** College of Physicians and Surgeons in the City of New York, 1852, a member of the New York Academy of Medicine and the New York Pathological Society, died at his home in New York City from dropsy, April 26, after an illness of several weeks, aged 78.

**Anthony L. Brown, M.D.** Howard University Medical Department, Washington, D. C., 1894, of Springfield, Mass., for three years a member of the local board of health, died at the Springfield Hospital, April 22, from pleuro-pneumonia, after an illness of five days, aged 42.

**John Magnus O'Brien, M.D.** University of Maryland School of Medicine, Baltimore, 1854, who retired from practice in 1865, died at the home of his son in Danville, Va., March 5, from gastritis and senile debility, after an illness of two or three weeks, aged 89.

**Frederick Jacob Delker, M.D.,** one of the first physicians to use embalming fluid; connected for many years with the coroner's office, died in Philadelphia, February 14, from septicemia contracted in embalming, after an illness of nearly seven years, aged 68.

**William T. Miracle, M.D.** University of the State of Oregon, Medical Department, Portland, 1896, a member of the American Medical Association, of Richland, Ore., died at McPherson's Hot Springs, on Snake River, Ore., April 14, after a long illness.

**Joseph Sill, M.D.** New York University, New York City, 1847, said to have been the oldest physician in Kalamazoo, died at his home in that city, April 23, after an illness of several years following an injury to the hip, aged 83.

**Robert Amory Scott, M.D.** Long Island College Hospital, Brooklyn, 1882, a member of Harrison County Medical Society, died at his home in Richmond, Ohio, April 9, after an illness of two years from arteriosclerosis, aged 49.

**John M. Zarecor, M.D.** Vanderbilt University Medical Department, Nashville, 1883, died at his home in West Nashville, Tenn., April 21, from lung disease, following influenza, after an illness of three months aged 45.

**George C. Raynor, M.D.** New York University, New York City, 1852, president of the Will County (Ill.) Medical Society for several terms, died at his home in Joliet, April 23, after an illness of three weeks, aged 79.

**Stephen Harris Rushing, M.D.** Department of Medicine of the University of Pennsylvania, Philadelphia, 1853, surgeon in the Confederate service during the Civil War, died at his home in Alexandria, La., April 20, aged 75.

**George F. Mooney, M.D.** Northwestern University Medical Department, Chicago, 1900, died at his home in Whittemore, Mich., April 21, from inflammation of the bowels, after an illness of five days, aged 35.

**John L. Capen, M.D.** Pennsylvania, 1875, a phrenologist of Philadelphia, died at the Pennsylvania Hospital in that city, April 23, from pneumonia, after an illness of two weeks, aged 82.

**Charles W. Carpenter, M.D.** Bellevue Hospital Medical College, New York City, 1880, died at his home in Newark, N. J., April 18, from cerebral hemorrhage, after a lingering illness.

**Van B. Thornton, M.D.** Medical Department of the Columbian University, Washington, D. C., 1861, died at his home in Hempstead, Texas, and was buried, Sept. 29, 1904.

**George A. Weems, M.D.** Cincinnati, College of Medicine and Surgery, 1871, surgeon in the Confederate service during the Civil War, of Pomona, Cal., died recently.

**H. C. Allen, M.D.**, formerly of Washington County, Ky., died at the Central Kentucky Asylum for the Insane, Lakeland, April 2, from senile dementia, aged 80.

**Charles E. Walker, M.D.** Michigan. 1878. West Henrietta, N. Y., died in Lee Hospital, Rochester, N. Y., April 17, after an illness of several weeks, aged 50.

**James Bretton Baucom, M.D.**, Louisville Medical College, 1884, died at Milford, Ky., March 31, from tuberculosis, after an illness of four months, aged 49.

**Floyd A. Whiting, M.D.** Ohio, 1891, died suddenly from heart disease, superinduced by heavy drinking, at his home in Telluride, Colo., April 15, aged 45.

**J. D. Anderson, M.D.** Keokuk Medical College, College of Physicians and Surgeons, Keokuk, Iowa, 1903, died at his home in Stanhope, Iowa, April 18.

**Ross Van Meter, M.D.** Miami Medical College, Cincinnati, 1895, died at his home in Greensburg, Ky., April 17, after a short illness.

**Oliver A. Goodhue, M.D.**, formerly of Englewood, Chicago, died in Tighland, Cal., April 16, from senile debility, aged 86.

**William Byrd Scudder, M.D.** Cincinnati, 1890, died at his home in Redlands, Cal., April 19, after a prolonged illness.

### Death Abroad.

**E. Hervieux, M.D.**, former president of the Paris Académie de Médecine, chief of the public vaccination service and physician-in-chief to the Maternité for many years, died at Paris, April 2, aged 86. His principal works were on variola and on the prophylaxis of puerperal infections.

## *Book Notices*

Bacteriology and Surgical Technic for Nurses. By Emily M. A. *Stoney, Superintendent of the Training School for Nurses*, St. Anthony's Hospital, Rock Island, Ill. Second Edition, Thoroughly Revised and Much Enlarged. By Frederick R. Griffith, M.D., Surgeon, Fellow of the New York Academy of Medicine. Fully Illustrated. Cloth. Pp. 278. Price, $1.50 net. Philadelphia, New York, London: W. B. Saunders & Co. 1905.

The first edition of this work was reviewed in these columns Jan. 12, 1901, p. 121. In this, the second edition, the descriptions of technic have been brought up-to date, and several chapters have been added, that dealing with obstetrical nursing being especially practical. The book is well illustrated, and should be of value to physicians, especially recent graduates, as well as to nurses, as it takes up many little points which are omitted from the curriculum of the average medical college.

The Open-Air Treatment of Pulmonary Tuberculosis. By F. W. Burton-Fanning, M.D. Cantab., Physician to the Norfolk and Norwich Hospital. Cloth. Pp. 176. Price, $1.50 net. Chicago: W. T. Keener & Co. 1905.

This little work gives in condensed form the results of the author's experience during the last ten years in the treatment of tuberculosis in general hospitals, sanatoria and private houses. Dr. Fanning takes up the etiology in detail and pays especial attention to the temperature, pulse and respiration, the selection of cases, the treatment of febrile and convalescent patients, diet, results of sanatorium treatment and requisites for open-air treatment.

A German-English Dictionary *of Terms Used in Medicine* and the Allied Sciences. By the late Hugo Lang, B. A. Edited and Completed by Bertram Abrahams, M.B., B.Sc., F. R. C. P., Assistant Physician, Westminster Hospital. Cloth. Pp. 598. Price, $4 00 net. Philadelphia: P. Blakiston's Son & Co. 1905.

This work will prove of great service to those who read German medical articles. It does not pretend to analyze the German words or to dilate on the translation; only the briefest *medical* synonyms are used. These are usually well chosen.

## *Queries and Minor Notes*

Anonymous Communications will not be noticed. Queries for this column must be accompanied by the writer's name and address, but the request of the writer not to publish his name will be faithfully observed.

### TO VISIT YOSEMITE ON THE PORTLAND TRIP.

Payne, Ohio, April 24, 1905.

*To the Editor:*—I wish information: 1. Will there be any special advantage in taking one of the specials to Portland to the meeting of the American Medical Association? 2. Will not the regular through and fast trains give the same service? 3. Will not the specials be more expensive? 4. Are the tourist sleepers comfortable and pleasant? 5. How can we best see Yosemite Valley and yet take in Los Angeles? 6. We do not want to be hurried on our trip. Any other information will be thankfully received.

J. W. Cartwright.

Answer.—1. No special advantage except that of companionship. 2. Yes, but there is only one through service without change from Chicago, and that is over the Northwestern-Union Pacific. Over other roads a change will have to be made somewhere, depending on the route taken. 3. No. 4. Yes, and in the summer time more so in certain respects, because the furnishings are of cooler material. The company may not be quite so select. 5. The Yosemite Valley can be reached from Merced, a point on both the Sante Fe and the Southern Pacific between San Francisco and Los Angeles, a stage line running from Merced to the Yosemite Valley, a distance of 88 miles, the fare for the round trip being $20. This route passes directly through two big tree groves. Yosemite can also be reached by way of Raymond, Madera County, some big trees being on this route. Leaving San Francisco at 7:30 a. m., one reaches Merced at noon. The stage trip includes a stop over night and Yosemite is reached the second afternoon. Hotel rates there are $3 and $4 a day; camp rates, $2. The Santa Fe and the Southern Pacific railroads will send descriptive folders with maps and full details on request. 6. All tickets allow stopovers west of certain points; in most cases all that is necessary is to notify the conductor on the train before he takes the ticket. It is best to receive instructions from the ticket agent, since the different railroads have different customs, as noted in the official announcement of the Committee on Transportation in The Journal, April 22, 1905, page 1300.

### WORKS ON PRACTICE OF MEDICINE.

Banner, Ill., April 18, 1905.

*To the Editor:*—What two text-books on the Practice of Medicine do you consider the latest and best for a general practitioner; also what are the two best books on Materia Medica and Therapeutics?

G. S. Betts, M.D.

Answer.—The latest work on the Practice of Medicine is that by Hare, which was reviewed in The Journal, April 8, 1905, p. 1134. Other standard works on this subject are "Principles and Practice of Medicine," Osler, "Practice of Medicine," Anders, new editions of both of which have been published recently; "Practice of Medicine," Walsh, "Practice of Medicine," Tyson, and "Medical Diagnosis." White & Wilcox's work on "Materia Medica and Therapeutics" is very practical; if a larger work is desired, Butler's Materia Medica and Therapeutics will be found well adapted for physicians' use. Other useful works on this subject are "Manual of Materia Medica and Pharmacology," Culbreth, "Text-Book of Pharmacology and Therapeutics; the Action of Drugs in Health and Disease," Cushny, "Materia Medica," Hatcher and Sollmann, "Materia Medica and Therapeutics," Potter, and "Manual of Materia Medica and Pharmacy," Muirt.

ROSSEL'S ALOIN TEST.

Newark, N. J., April 18, 1905.

*To the Editor:*—In your editorial of this week under the heading "The Significance of Traces of Blood in Typhoid Stools," you mention Rossel's aloin test. I will greatly thank you for a description of the technic of this test. B. H. Woolf.

Answer.—Rossel's method may be found in the *Deutsche Archiv für klinische Medicin*, Vol. 76, No. 6, 1903. About one dram of the feces is put in a test-tube and extracted with 5 to 10 c.c. of ether to remove the fat. After pouring off the ether the feces is thoroughly shaken up with 5 c.c. of glacial acetic acid. The acid is then poured into another test-tube and extracted with 5 to 10 c.c. of ether. The test is then made with this ether. To the ether is added 20 to 30 drops of old oil of turpentine and 10 to 15 drops of a 1 to 4 per cent. solution of Barbadoes aloin in 60 to 70 per cent. alcohol. In the presence of blood the mixture takes on a light red color, turning to bright cherry red in about ten minutes. The aloin solution should be prepared fresh each day. Rossel makes it by adding enough powdered aloin to cover the point of a small spatula to 3 to 5 c.c. of the 60 to 70 per cent. alcohol. Some of these figures are not very exact, but that is the way Rossel gives them.

# *State Boards of Registration*

## COMING EXAMINATIONS.

Mississippi State Board of Health, Jackson, May 9-10. Secretary, J. F. Hunter, M.D., Jackson.

Massachusetts Board of Registration in Medicine, State House, Boston, May 9-10. Secretary, Edwin B. Harvey, M.D., Room 159, State House, Boston.

New York State Homeopathic and Eclectic Boards, New York, Albany, Syracuse and Buffalo, May 16-19. Chief of Examinations Division, Charles F. Wheelock, State Capitol, Albany.

*Board* of Medical Examiners of the State of North Carolina, Greensboro, May 17. Secretary, George W. Pressly, M.D., Charlotte, N. C.

The Nebraska State Board of Health, Lincoln, May 31 and June 1. Secretary, George H. Brash, M.D., Beatrice.

Minnesota State Board of Medical Examiners, Old State Capitol Building, St. Paul, Minn., June 6-8. Secretary, C. J. Ringnell, M.D., Minneapolis.

Board of Medical Examiners of Wyoming, State Capitol, Cheyenne, June 7. Secretary, S. B. Miller, M.D., Laramie.

Michigan State Board of Registration in Medicine, The Capitol, Lansing, June 13. Secretary, B. D. Harison, M.D., Sault Ste. Marie.

State Board of Medical Registration and Examination of Ohio, Cleveland, Columbus and Cincinnati, June 13-15. Secretary, Frank Winders, M.D., Columbus.

Board Representing the President and Fellows of the Medical Society of Delaware, Dover, June 20-22. Board Representing the Homeopathic Medical Society of Delaware, Wilmington, June 20-22. Secretary of the Medical Council of Delaware, P. W. Tomlinson, M.D., Wilmington.

State Board of Medical Examiners of New Jersey, Trenton, June 20-21. Secretary, E. L. B. Godfrey, M.D., Camden.

Medical Examining Board of Virginia, Richmond, June 20-24. Secretary, R. S. Martin, M.D., Stuart.

Board of Medical Examiners of Maryland, Baltimore, June 21-24. Secretary, J. McP. Scott, M.D., Hagerstown.

Medical Council of Pennsylvania, Philadelphia and Pittsburg, June 27. Secretary of the Medical Council, H. C. Shaeffer, M.D., Harrisburg.

**Arkansas April Report.**—Dr. J. P. Runyan, secretary of the State Medical Board of the Arkansas Medical Society, reports the written examination, held at Little Rock, April 11-12, 1905. The number of subjects examined in was 7; total number of questions asked, 50; percentage required to pass, 75. The total number examined was 68, of whom 51 passed and 17 failed. Of those who passed 6 were graduates and 45 undergraduates. All the unsuccessful applicants were undergraduates.

**Nebraska February Report.**—Dr. George H. Brash, secretary of the Nebraska State Board of Health, reports the oral and written examination held at Lincoln, February 8. The number of subjects examined in was 8; total number of questions asked, 80; percentage required to pass, 75. The total number of applicants examined was 9, of whom 7 passed and 2 failed. The following colleges were represented:

PASSED.

| College. | Year Grad. | Per Cent. |
|---|---|---|
| College of P. & S., New York | (1904) | 75.75 |
| Barnes Med. College, St. Louis | (1903) | 87.66 |
| Grant University, Chattanooga | (1903) | 80 |

| | | |
|---|---|---|
| University of Colorado | (1904) | 86.37 |
| Rush Medical College | (1902) | 92.75 |
| Woman's Medical College, Philadelphia | (1903) | 80.37 |
| College of P. & S. Keokuk | (1902) | 82.87 |

FAILED.

| | | |
|---|---|---|
| Eclectic Med. Inst., Cincinnati* | | 74.66 |
| Barnes Med. Coll., St. Louis** | (1902) | |

*Year of graduation not given.

**Withdrew from examination after writing one paper. Two persons failed to appear after making application.

**New Nevada Medical Practice Act.**—Under the new law, a certificate will be issued, without special examination, to a person who furnishes satisfactory proof of having received a diploma from a medical school whose requirements, at that time, conformed to those of the Association of American Medical Colleges. A person possessing a diploma granted by any other college must in addition pass a satisfactory examination before the board in the subjects prescribed. The examination and registration fee is $25. The act provides for the usual exemptions, and also contains a reciprocity clause. Dr. S. L. Lee, Carson City, is the secretary of the Board of Examiners.

**Oklahoma March Report.**—Dr. J. W. Baker, secretary of the Oklahoma Examining Board, reports the written examination held at Guthrie. The number of subjects examined in was 9; total number of questions asked, 90; percentage required to pass, 66.6 in each branch. The total number examined was 21, of whom 9 passed and 12 failed. The following colleges were represented:

PASSED.

| College. | Year Grad. | Per Cent. |
|---|---|---|
| University of Missouri | (1904) | 79 |
| College of P. & S., St. Louis | (1897) | 66 |
| University Med. Coll. of Kansas City | (1884) | 70 |
| University Med. Coll. of New York | (1880) | 69 |
| Rush Medical College | (1900) 68; (1902) | 85 |
| Baltimore University School of Medicine | (1904) | 75 |
| Central Medical Coll., St. Joseph, Mo | (1904) | 70 |
| Chicago Homeopathic Med Coll | (1896 and 1904) | 98 |
| College of P. & S., Baltimore | (1885) | 74 |
| Hospital College of Medicine, Louisville | (1887) | 70 |

FAILED.

| | | |
|---|---|---|
| Kentucky School of Medicine, Louisville | (1890) | 44 |
| Missouri College of Medicine, St. Louis | (1859) | 59 |
| Meharry Med. Coll., Nashville, Tenn | (1904) | 53 |
| Barnes Med. Coll., St. Louis | (1899) | 64 |
| Kansas City Homeo. Med. Coll | (1893) | 65 |
| Gate City Med. Coll., Texarkana, Texas | (1903) | 54 |
| Arkansas Industrial University | (1894) | 49 |
| Name of college not given | | 53, 55 |

**Utah January and April Reports.**—Dr. R. W. Fisher, secretary of the Board of Medical Examiners of the state of Utah, reports the January and April examinations. The following colleges were represented:

PASSED (JANUARY).

| College. | Year Grad. | Per Cent. |
|---|---|---|
| Rush Medical College | (1896) 82; (1903) | 82, 86 |
| College of P. & S., San Francisco | (1904) | 81 |
| Victoria Med. Coll. (Canada) | (1874) | 81 |
| Univ. of Denver, Med. Dept | (1895) | 78 |
| Gross Med. College | (1895) | 76 |

PASSED (APRIL).

| | | |
|---|---|---|
| Medical Department, St. Louis Univ | (1904) | 75 |
| Baltimore Medical College | (1894) | 86 |
| Univ. of Denver Medical Department | (1901) | 85 |
| Chattanooga Med. College | (1901) | 75 |

FAILED.

| | | |
|---|---|---|
| Laval Univ. Med. Dept | (1901) | 48 |
| St. Louis Univ. Med. Dept.* | | 68.8 |

*Year of graduation not given.

# *The Public Service*

## Army Changes.

Memorandum of changes of station and duties of medical officers, U. S. Army, for the two weeks ending April 29, 1905:

Reynolds, F. P., surgeon, ordered to proceed from Presidio of San Francisco, to Presidio of Monterey, Cal., with Fourth Cavalry, for duty at the Yosemite National Park, Cal.

Kiersted, Henry S., asst.-surgeon, ordered to proceed from Presidio of Monterey, Cal., with Fourth Cavalry, to Sequoia National Park, Cal.

Powell, Junius L., surgeon, relieved from duty at Fort Hamilton, N. Y., and ordered to Manila, P. I., for duty in Philippines Division, about June 30, 1905.

Ewing, Charles B., surgeon, relieved from duty at Columbus Barracks, Ohio, and ordered to Manila, P. I., for duty in the Philippines Division, about July 31, 1905.

Harris, H. S. T., surgeon, relieved from duty at Fort Slocum, N. Y., and ordered to Manila, P. I., for duty in Philippines Division.

Stiles, Henry R., asst.-surgeon, left Washington Barracks, D. C., on ten days' leave of absence.

Winn, Robert N., asst.-surgeon, advanced to rank of captain asst.-surgeon.

Willcox, Charles, surgeon ordered from Fort Totten, N. Y., to Fort Wadsworth, N. Y., for duty with 56th and 57th Companies

### Wyoming.

Sheridan County Medical Society.—Physicians of Sheridan met, April 17, and effected a permanent organization in co-operation with the Wyoming State Medical Society. The following officers were elected: Dr. Charles R. L. Halley, president; Dr. G. B. Simpson, vice-president; Dr. T. E. Marshall, secretary; Dr. Hurd, treasurer, and Drs. F. A. Hodson, G. B. Simpson and William Miller, censors, all of Sheridan.

# Society Proceedings

## COMING MEETINGS.

American Medical Association, Portland, Ore, July 11-14, 1905.

Utah State Medical Association, Salt Lake, May 9-10.
Medical Society of Nevada, Reno, May 9-10.
Louisiana State Medical Society, New Orleans, May 9-11.
New Mexico Medical Society, Las Vegas, May 10.
Ohio State Medical Association, Columbus, May 10-12.
American Ophthalmological Society, Boston, May 11-12.
American Association of Physicians, Washington, May 16-17.
Arkansas Medical Society, Little Rock, May 16-17.
Illinois State Medical Society, Rock Island, May 16-18.
Missouri State Medical Assn., Excelsior Springs, May 17-18.
Montana State Medical Association, Butte, May 17-18.
Iowa State Medical Society, Des Moines, May 17-19.
New Hampshire Medical Society, Concord, May 18-19.
Medical Society of the State of N. Carolina, Greensboro, May 23-25.
Connecticut Medical Society, Hartford, May 24-25.
North Dakota State Medical Society, Grand Forks, May 24-25.
American Gynecological Society, Niagara Falls, N. Y., May 25-27.
West Virginia State Medical Association, Wheeling, May 24-26.

## COUNCIL ON MEDICAL EDUCATION OF THE AMERICAN MEDICAL ASSOCIATION.

*First Annual Conference, held in Chicago, April 20, 1905.*

Chairman, Dr. Arthur D. Bevan, Presiding.

This meeting was called for the purpose of conferring with representatives of state and territorial licensing and examining boards, the American and Southern Medical College associations, and the Government medical services. These bodies were represented by the following:

State Delegates: Colorado, S. D. Van Meter, Denver; District of Columbia, Wm. C. Woodward, Washington; Illinois, George W. Webster and W. H. Hipp, Chicago; Indiana, J. C. Webster, Lafayette, and J. M. Dinnen, Fort Wayne; Iowa, Fred W. Powers, Waterloo; Kentucky, Wm. Bailey, Louisville; Louisiana, A. F. Barrow, St. Francisville; Nebraska, A. B. Somers, Omaha; New Mexico, George W. Harrison, Albuquerque; New York, Albert Vander Veer, Albany; North Dakota, H. M. Wheeler, Grand Forks; Oregon, H. E. Currey, Baker City; South Carolina, S. C. Baker, Sumter; West Virginia, A. R. Warden, Grafton.

Association American Medical Colleges: J. M. Dodson, Chicago; Southern Medical College Association: G. C. Savage, Nashville; U. S. Army: Col. Philip F. Harvey, Assistant Surgeon-General; U. S. Public Health and Marine-Hospital Service: P. A. Surgeon, George B. Young.

Others present were:

Dr. L. S. McMurtry, Louisville, President American Medical Association; Dr. Geo. H. Simmons, Secretary American Medical Association; Prof. J. H. T. Main, Dean Grinnell College, Iowa; Prof R. D. Harlan, President Lake Forest College, Illinois; Dr. L. F. Barker, University of Chicago.

The delegates from the following states, appointed by the respective governors, were absent:

Alabama, W. H. Sanders; Arkansas, J. P. Runyon; Georgia, P. D. Patterson; Kansas, G. F. Johnston; Maryland, J. McP. Scott; Mississippi, J. A. Rhodes; Montana, W. C. Riddell; New Hampshire, J. F. Robinson; New Jersey, E. L. B. Godfrey; Oklahoma, E. G. Sharp; Pennsylvania, H. Beates, Jr.; Texas, D. J. Jenkins; Utah, R. W. Fisher; Vermont, W. S. Nay; Virginia, R. W. Martin; Wisconsin, W. T. Sarles; Wyoming, E. O. Rohrbaugh.

Dr. Lewis S. McMurtry, President of the American Medical Association, being introduced to the conference, directed attention to the fact that ever since the foundation of the American Medical Association its chief purpose has been to promote and to advance the standard of medical education in the United States. For years the delegates to the annual meetings of the Association represented the medical colleges of the country; hence, the Council on Medical Education is carrying out one of the most important purposes of the parent bodies.

This meeting, he said, was called for the purpose of bringing together the various examining and licensing powers of the states and territories, to secure a mutual interchange of ideas and counsel. It is evident that any movement looking toward reciprocal registration between the various states and toward uniformity in standards and requirements should be held under the auspices of the American Medical Association, for the reason that it has for its great purpose the elevation of the masses of the profession, which it is fulfilling by bringing together the doctors from all parts of the country.

### The History of the Council and the Scope of Its Work.

The scope of the work of the Council was outlined in full by the chairman. After giving an elaborate history of the organization of the Council and of the events which led up to it and making a statement of what it had accomplished, he said:

The program of to-day includes the reports of subcommittees on Preliminary Education on Curricula, and the discussion on such phases of the subject of medical education as the Council considered were especially pressing at the present time, as, What shall be the standard of recognition of medical colleges? The question of reciprocal registration. The relation between the college of liberal arts and the medical school. And, most important of all, and, in fact, the real purpose of this conference is found in the last section of the program, i. e., the question of coöperation between the American Medical Association and the state licensing bodies in the effort at elevating medical education.

The existing conditions of medical education in this country are unsatisfactory as compared with the conditions found in England and Germany. The existing conditions are well shown by an abstract of laws regulating the practice of medicine in the various states and territories of the United States, published in pamphlet form by The Journal of the A. M. A., Jan. 1, 1905.

A table giving the principal features of the different state laws shows that all of the 52 states and territories, including Hawaii and Porto Rico, have medical laws of more or less value. Of these 52, 35 require both a diploma and a state examination; 12 an examination alone; 5 either a diploma or an examination. In 13 the examining board is a separate body; in the remainder the examining is a function of a board, such as the state board of health. Only 5 states demand a preliminary examination by the state. In 17 the examining board is either nominated or approved by the state medical societies.

Although a critical analysis of existing conditions shows an unsatisfactory state of affairs, still, as compared with the conditions which existed twenty years ago, even the most pessimistic critic must admit that we have made great progress. Then many states had no medical laws at all. In many registration and the payment of a small license fee was all that was required. Many accepted a diploma, and but two, or at most three, years of medical work was insisted on; and practically none demanded any evidence of preliminary education.

What would be regarded as a perfectly satisfactory state of affairs for medical education, we might say ideal state of affairs, from our present view-point? Such medical education must be equal to that required by England and Germany. It would comprise:

1. A preliminary education such as would enable the student to enter our standard universities, with an average age of about 18; the passing of this preliminary education by the state authorities.

2. Five years of medical work, the first year to include physics, chemistry and biology. This year to be taken either in a medical school or in a college of liberal arts; and the last year of the medical course to be so arranged as to bring the student in actual contact with patients at the bedside.

3. A diploma from a medical school in good standing, this being evidence that the student has completed his work and passed examinations satisfactory to the medical school; and, further, that the medical school, as shown on investigation either by the state board or by the Council on Medical Education of the American Medical Association, or both, is doing the kind of work which entitles it to recognition.

4. This diploma should be accepted as evidence entitling the holder to take an examination before his state board. And, on passing such examination, which should be so conducted as to test in the most thorough way the candidate's knowledge, he should be entitled to practice.

5. Essentially the same state of affairs medical should exist in all the states and territories, and the license to practice conferred by one state should be recognized by all.

In view of the rapid progress made within the last twenty years, it would seem reasonable to believe that within another period of twenty years we shall find medical education in this country advanced to the condition which we have outlined. However, in order to accomplish such results, much must be done, and all the agencies which can assist must co-operate toward the desired end, and the advancement can not take place all at once, but one step at a time. There are many practical obstacles which must be overcome. They must be recognized.

and their weight and influence considered. Among them two are especially important: First, the inequality, as far as general education is concerned, between the various states. It is easier to demand a high standard in New York and Minnesota than in some of the Western and Southern states, because public opinion and professional opinion has not been educated to demand a high standard in those states. It is believed, however, that the profession of every state and territory can do very much to correct this by preaching and demanding higher ideals.

A second obstacle, and one of a good deal of moment, is found in the medical colleges which are conducted as private corporations. There can be no longer any excuse for the existence of a medical school which is conducted by a body of men for profit. It is only necessary to state the demonstrated fact that it costs more to furnish a student with a medical education than he pays for fees to show conclusively that a medical school supported solely by the fees of students, and which pays a profit to its owners, is doing poor work and has no warrant for existence. Fortunately, with the increase of requirements, especially for preliminary education, these medical schools will be forced either to seek endowments or absorption by universities which will enable them to do acceptable work, or else they will be condemned to extinction by the law of the survival of the fittest.

However, these schools represent property and professional interest, and honorable achievement in the past, which are not to be ignored, and, if possible, sufficient notice of increase in requirements should be given and the advances made at a rate which will enable those which are worth saving to bring themselves up to the higher requirements.

What can we reasonably demand as a minimum requirement at the present time of those seeking to enter the medical profession, and how can this demand be best enforced? These are the questions which are vital and pressing. Personally, I feel that the following requirements are reasonable and can, by the co-operation of the agencies interested in medical education, be made at once effective:

1. Preliminary education, a four-year high school or academy education, such as shall prepare a student to pass the entrance examination to our standard universities. The preliminary education to be passed on by the state authorities, or, at least, not by the faculty of the medical school.
2. A medical course of four years, each year of at least thirty weeks (exclusive of holidays) in a medical school in good standing; such standing to be determined by a joint conference of the Council on Medical Education of the American Medical Association and delegates from the state licensing bodies.
3. The presentation of a diploma from such school in good standing shall entitle the holder to appear before his state board for examination for license to practice.
4. The passing of a satisfactory examination before a state examining board.

It would seem that we might obtain action from the legislatures and medical examining boards which would insure the adoption of the general plan outlined above; and, further, we could hope that, as one after the other of the states conformed to these regulations, a scheme of reciprocity might be developed which would soon embrace all but the most backward of the states; and when the great majority of the states agreed the weaker sisters soon would fall into line.

What we need is co-operation, especially the co-operation between the medical profession, represented by the American Medical Association, the state and county medical societies and the state authorities, represented by the state licensing and examining boards. The most important question, therefore, before this conference is, How can the American medical profession and the state licensing bodies co-operaate to elevate and control medical education? It is believed that such co-operation is possible. In such co-operation it will be the function of the American Medical Association to represent and possibly mold the opinion of the medical profession, and to employ its influence and the influence of the county and state medical societies in obtaining proper medical legislation. In such co-operation it will be the function of the state licensing bodies to protect the interests of the public and the profession by seeing that the medical laws are properly interpreted and enforced, and from their intimate knowledge with the medical acts they can often be of service in securing or modifying medical legislation.

It is not the purpose of the Council on Medical Education of the American Medical Association to attempt to arrogate to itself any special powers, nor does it desire either to criticise or interfere in any way with any of the agencies which are already in the field. If its creation is to result in good, it must be the means of obtaining co-operation between the medical profession, the medical school, the college of arts, the state examining boards, the government services, and all the factors which are interested in elevating and controlling medical education.

Gentlemen, with such objects in view, we ask your assistance and advice and co-operation, and we thank you for responding to our invitation and for your attendance here to-day. It is hoped that the questions submitted will have the fullest discussion, in which you are all asked to take part. It is hoped that this first conference may lead to the establishment of an annual conference between the bodies which are represented here to-day, and that such conferences may be productive of much good.

## Preliminary Education.

On behalf of the Subcommittee on Preliminary Education, Dr. V. C. Vaughan reported as follows:

### REPORT OF THE COMMITTEE ON REQUIREMENTS FOR ADMISSION TO MEDICAL SCHOOLS.

To the Council on Education of the American Medical Association:

Gentlemen: Your committee appointed to report on the requirements for admission to medical schools submits the following:

Medicine has from the remotest times been known as one of the learned professions, and its history, in a general way at least, justifies this honor. Professional pride should, therefore, lead those in whose charge the good name of the profession now rests to see to it that its ranks are recruited with the best. It is true that the medical charlatan still flourishes, and that the credulity of the mass of mankind in medical matters grows less, if at all, very slowly; yet there has never been a time when the regular medical profession had more absolute control of the portals through which aspirants for its honors must pass than at the present time. The schools can set their standards as high as they wish, and beyond and above the schools are the state boards of medical examiners which can act as a second barrier to the admission of the undesirable. If, therefore, in this condition of affairs the reputation of the profession for wide and accurate learning suffers in the least, its leaders and teachers are responsible for its abasement.

There is no crying need for more physicians and surgeons. The supply quite equals the demand, and for this reason the time is propitious for raising the barrier to admission one notch higher. We do not mean that a close corporation or a trades union should be formed, but we do mean that the reputation of our profession for culture and learning should be strengthened, and so long as the supply outruns the demand we are in duty bound to select with more care the individuals that constitute the supply.

Modern medicine consists of those facts, gathered from the various sciences, that are capable of utilization in either the prevention or cure of disease. All the physical sciences, at least the fundamental ones, have made and are still making contributions to medical knowledge, and medicine can advance no faster than the sciences on which it is founded advance. Discovery of facts must precede their application. Therefore, medical men must encourage research work, and it is a duty imposed on every medical school to advance the bounds of scientific knowledge. For centuries there were individual medical men who believed that certain diseases are disseminated by low forms of life, which, multiplying parasitically in the bodies of men, elaborate poisons and thus induce the symptom-complex of these diseases But the germ theory of disease had to await the discovery of the compound microscope before it could pass from the list of theoretical conceptions into that of demonstrated facts. Times that are marked by scientific discoveries are closely followed by medical advances. The chemist had to produce ether and chloroform before they could be applied in anesthesia. The perfection of the laryngoscope by Garcia opened up the way to the study and treatment of diseases of the larynx, and without the ophthalmoscope we would still be blind so far as the recognition of pathological conditions of the fundus of the eye are concerned. The laborious and long-continued investigations of Beaumont laid the foundations of all our present-day knowledge of disturbances of digestion. Illustration after illustration along these lines might be given, but inasmuch as the fundamental statement that every advance in medicine is founded on discovery can not be questioned, a great array of examples is not necessary.

However, some may be ready to ask, What has this to do with the requirements for admission to medical schools? It has everything to do with it; it is the keystone to the arch. Medicine consists in the application of scientific facts. It is the medical man who must apply these facts, and how can he do it if he be ignorant of the sciences from which they come? Without this knowledge the medical man is as helpless as a South Sea islander would be if asked to work a complicated machine. The man who is entering on the study of medicine must know the essential facts of the fundamental sciences, and what he does not know he must have the means of acquiring. To sum up, then, we may say that medical schools should require of all matriculates a knowledge of the primary and essential facts and theories of those sciences that most liberally contribute to medicine, and a sufficient knowledge of language and literature to enable him to make constant additions to his knowledge of the sciences. Possibly it will be better to discuss the language requirement first.

Certainly no one should be permitted to enter on the study of medicine if he be ignorant of his own language, its syntax and its logic. We do not mean that a hypercritical knowledge of grammatical construction, which is so pedantically aired by many teachers of English, should be required; but the medical man should be able to read and write without gross violence to the rules of grammar and so that a person of average intelligence can understand him, and it is equally important that he be able to understand what intelligent people say and write.

This is so self-evident that I need not dwell on it. Should our medical students know any other living language? This is a question about which there may be some diversity of opinion. There are many eminent men both among the scientific and practical leaders of our profession whose knowledge of language is confined to their mother tongue. This is true of some of the greatest teachers of Europe as well as of America. However, this does not render less true the statement that the man who reads easily and intelligently German and French, in addition to his native English, has a great advantage over his brother who is confined in the acquisition of knowledge to his native speech. Everything of value sooner or later reaches the industrious and intelligent reader, even when he is confined to the English language, but his more fortunate colleague will often be ahead of him in time, and less frequently in the accuracy and extent of his information, because translations are often late and frequently are more or less faulty either in scope or in accuracy. We would not say that a reading knowledge of German and French should be required for admission to all our medical schools, but it certainly should be recommended and those schools which can require it should do so.

The nomenclature of our profession is based on the Latin language to such an extent that all medical educators agree that at least two years' study of this language should be demanded of all medical matriculates.

It seems that there can be no marked differences of opinion concerning the amount of mathematical knowledge that should be required of the prospective medical student. It is to be presumed that he has adequate knowledge of arithmetic; that he knows how to solve problems algebraically, and that he understands plane geometry. Beyond this the medical student should have a short but thorough drill in plane trigonometry. Without this training physics must practically remain to him a *terra incognita*.

Physics, chemistry and biology, the last including botany and zoology, are generous contributors to medicine, and in their essential facts and fundamental theories should be fairly understood by the medical matriculate. There is probably no other subject of equivalent importance so generally disregarded in medical education, either as a requirement for admission or as given in the course. as physics. How medical men can be fitted for the duties of the profession without any adequate knowledge of physics is a question frequently asked of us by French and German teachers, for in these countries the medical students take the thorough courses given in this subject to those who are working for the higher scientific degrees. In most medical schools in this country the most superficial courses in physics in high schools, often without any laboratory work, are accepted for matriculation, and no instruction in this branch is given in the medical curriculum, and yet a knowledge of this subject is needed in the application of all mechanical means for the correction of deformities, for the treatment of fractures and dislocations, for the study of errors of refraction, and in the use of the microscope, ophthalmoscope, laryngoscope, Finsen light, *x*-ray, etc. College or advanced physics should be either required for admission or given in the medical curriculum.

The requirement in chemistry for admission to most of our medical schools is well-nigh worthless, and the instruction in this subject and its numerous branches in our medical curricula is often of but little value, embracing, as it does, one or possibly two semesters of lectures, with demonstrations covering the whole range of general, analytical, physiologic and toxicologic chemistry, supplemented by a brief course in the laboratory of analytical chemistry. How can it be expected that one whose knowledge of chemistry is thus limited should comprehend Ehrlich's side-chain theory or have any comprehension of food principles, to say nothing of their assimilation and utilization in the human body. A knowledge of the fundamental facts and theories of general chemistry should be required for admission, and either before or after admission each student should be thoroughly instructed in the theories of organic chemistry and the general principles of physiologic chemistry and to some extent in the methods of toxicologic investigation.

The prospective medical student should have a broad and comprehensive knowledge of general biology, a subject which is now taught quite adequately only in the best high schools. This instruction should be, in part at least, given in the laboratory. This furnishes a good basis for both the morphologic studies, as histology, embryology and bacteriology, and for those of physiology and physiologic chemistry that come in the medical curriculum.

To sum up this part of the subject, we think that the following should constitute the requirements for admission for the present to our medical schools:

1. At least three years of English, including grammar, rhetoric and logic. To this a year or more of English literature might be added with advantage.
2. At least two years of Latin, including the grammar, composition and at least four books of Cæsar We believe that four years of Latin will be all the better, but the shorter course might be permitted as a minimum.
3. We regard an easy reading knowledge of German of great value to the medical man, and if the same familiarity with French be added, when he enters the profession he will have his own indolence to blame if he does not keep abreast of professional advance.
4. Mathematics should be pursued through higher arithmetic, school algebra, geometry and trigonometry.
5. The fundamental facts and theories of physics, chemistry and general biology should be impressed by laboratory instruction.
6. The medical man should not be lacking in general knowledge and he should be expected to be informed in descriptive and political geography and in the history not only of his own country, but of the world.

Experience has shown that it is easy to get medical schools to place requirements on paper, but more difficult to have them enforced. For this reason we look with favor on the enactment of laws taking the decision on preliminary requirements out of the hands of medical faculties and placing it on official boards, and, although the official standard may be too low, as it certainly is in at least one state, its enforcement is more certainly secured. We can see no reason why our country should not have the best medical schools in the world, and if four years be too short a time to secure such a training let us lengthen the time either by requiring more thorough collegiate training of our matriculates or by adding a year to the medical curriculum. Let us elevate the profession and leave it on a higher plane than we found it.

(Signed) Victor C. Vaughan.
J. A. Witherspoon.

The discussion of this report was opened by Prof. Richard D. Harlan, President of Lake Forest College. He said that these preliminary studies in science should be taught as pure science entirely, and that the liberal arts college is better prepared to do this than is the medical college. By delegating this work to the liberal arts college, the medical college will relieve congestion in the first year of its curriculum.

Dr. S. D. Van Meter, Colorado, called attention to the fact that the majority of states require some evidence of the moral standard of the applicant; therefore, it might be well, for those in charge of deciding the question of preliminary education, to keep this fact in mind and select men who have the proper breeding to fit them for a college course.

Dr. A. F. Barrow, Louisiana, said that their state board has noted the advancement of the medical education of students presenting themselves for licensure, but that they also noted an absolute disregard on the part of some medical colleges of the educational requirements for matriculation. For this reason his board refuses to recognize the graduates of two colleges. That condition of affairs might easily be corrected by the co-operative influence of the American Medical Association, through the Council on Medical Education, by requiring that entrance certificates come from somebody, such as the board of medical examiners of a state, a certificate from whom will admit to a medical college.

Dr. L. C. Webster, Indiana, referred to the matriculation requirements of the Indiana State Board of Examiners. In order for a college to turn out good material, it must start with good material. Indiana is ready to co-operate with other bodies to attain the accomplishment of this object.

Dr. S. C. Baker, South Carolina, suggested that a knowledge of Greek is fully as essential as a knowledge of Latin, French or German; hence, it would be advisable to include Greek in the preliminary requirements. South Carolina requires of applicants for licensure evidence of graduation from a medical college of established reputation, and of possessing sufficient preliminary education, at least a first-grade teacher's certificate granted by a county or state superintendent of education.

Prof. J. H. T. Main, Grinnell College, proposed offering an option between Latin and Greek. The latter is a creative language and the fundamental terms in anatomy, bacteriology, chemistry, etc., are absolutely Greek. Hence there is good reason why, if emphasis is put on any ancient language, there should be an option between Latin and Greek.

Dr. G. W. Webster, Illinois, said that, while there has been much talk about raising standards, no real standard has as yet been established.

The report was also discussed and commended by Drs. J. M. Dinnen, Indiana; H. E. Currey, Oregon; H. M. Wheeler, North Dakota; F. W. Powers, Iowa, and A. B. Somers, Nebraska.

The report of the subcommittee on curricula was presented by Dr. Charles H. Frazier.

### Report of Subcommittee on Medical Curriculum.

Your subcommittee on the medical curriculum begs leave to present its report in two sections. From a study of the catalogues and from his knowledge of the training of most medical schools, Dr. Councilman found, in attempting to form what seemed to be an ideal curriculum, that there were certain difficulties in the way of putting into successful operation the best methods of medical education. These he believed to be mainly two: First, there is a lack of appreciation of the true methods of medical education; second, the relation of medical schools and hospitals, the latter practically controlling the appointments in the schools, prevent proper methods from being carried out. As a preface, therefore, to the curriculum which he proposes for consideration, he presents his views on the conditions underlying medical education.

The second section of the report, which was prepared by Dr. Frazier, contains an expression of opinions with reference to the methods of formulating a standard curriculum, and submits for consideration a curriculum which in essential particulars corresponds to that of Dr. Councilman.

Your committee has studied carefully the catalogues of the majority of the medical schools, and is struck with the great variations, not only in the arrangement of the course, but in the methods of instruction, as well as in the hours which are allotted to each. Thus, for example, in some schools anatomy is taught in the first three years, and in others only in the first year. In some only 20 lectures are given; in some 160 hours; in some only 174 hours are allotted to practical work, and in some 522 hours. In some schools no lectures are given in histology, and in others 128; in some but few hours in practical work, in others 288. Bacteriology is taught in different schools in the first, second, third and fourth years of the curriculum; in some instances with no practical work at all. In medicine the number of clinics varies from 32 to 288, and the lectures from 20 to 140; and in surgery the number of clinics varies from 48 to 288, and the lectures from 28 to 192. These data are sufficient to bring out the wide discrepancy that exists, and serve as an argument for the necessity of reform.

#### PART I.—BY DR. COUNCILMAN.

The object of medical education is to train individuals so that they may be of service in combating disease. Some of the individuals so trained will deal with the great questions of disease as it affects the general public; some will seek by the experimental study of disease to increase knowledge; but by far the greatest number will deal with disease in the individual. The same methods of education are applicable to all.

Tact, sympathy, generosity of character, knowledge of human nature, all qualities of the highest importance in determining the usefulness of the physician, can not be taught in the medical school. These qualities are partly innate, partly the result of culture.

The student may acquire in the medical school knowledge of disease and proficiency in the use of methods by means of which knowledge is acquired. Knowledge in medicine, as in any other branch of science which deals with things, is derived from the study by the senses of objects and the phenomena exhibited by them. The study is aided by various methods, by the use of which the territory covered by sense impressions is extended. From the interpretation of sense impressions and by analogy, hypotheses may be formed which are to be tested by experiment and future observations. The experiment is also of great value in enabling observations under known conditions to be made. The study of disease is difficult because of our lack of knowledge of the living tissues and the conditions acting on them to which the disease is due. Every day teaches us more of the complexity of the tissues and fluids of the body, and we are only beginning to understand how complex are the relations between living tissues and parasites. Every case of disease presents some variations from the type, and general knowledge of a peculiar disease gives little assistance in ascertaining the conditions produced in the individual affected. Knowledge of the conditions produced in the individual by disease is essential, and can only be obtained by the methods of science.

In medical education it must be recognized that the student can acquire knowledge of the things he is studying only by means of the senses. Lectures in medical education play a very subordinate rôle. The lecture has its place, but it has to be given in connection with the student's work, and it is for the purpose of amplifying and co-ordinating the knowledge he has obtained from the study of objects by means of his senses.

The four-year course in medical schools has been generally adopted. Two of these years can be devoted to the preparation of the student for clinical work, the other two to the various classes of clinical work. The first two years present little difficulty. Their success depends on laboratory facilities and material for study, both of which can be provided, in some cases in fuller measure than in others. The difficulty comes in the last two years which are devoted to clinical work. For the proper teaching of clinical medicine, contact of the student with clinical material is essential. This can be provided only in hospitals.

The hospital must be regarded in a certain sense as a laboratory for the study of disease. The three purposes of a hospital are to provide care and comfort for the sick, to instruct others in administering to their care and comfort, and to increase knowledge of disease. None of these purposes can be efficiently carried out without the study of disease. In very few hospitals in this country does a medical school have any control of hospital appointments Where there is such control both medical school and hospital show a greater degree of efficiency than in the case where the hospital, through the men who have clinical material in their hands, controls the appointments in the medical schools. In hospitals not vitally connected with medical schools, the prevalent method of making appointments and promotions is opposed to the attainment of the highest degree of efficiency in teaching and in the care of patients. It must stand to reason that the best men, who are trained and skilled in the most exact methods, who base their procedures for the relief of disease on knowledge rather than on conjecture or intuition, and who take infinite pains, must obtain the best results.

Present methods as followed by most hospitals do not lead to the best training and best development of men. As a rule, only the lowest positions in the out-patient departments of a hospital are filled by introducing new men into the hospital. Young men are chosen for these positions, and promotion is based on seniority of service. There is so little control exercised over the methods in these minor places that it is impossible for efficiency of service to be fully recognized. If the young man does his work according to the traditions of the hospital and does not make himself obnoxious to his superiors by too great a degree of activity or independence of thought and action, his promotion is sure. In the out-patient department the number of patients is usually too great for exact work to be done. Lax methods prevail, and the young man in his best years learns lax methods and does things by routine. By constant promotion control of clinical material for certain months of the year is obtained, and then the hospital appointee becomes a candidate for important teaching positions in the medical schools. By this time he usually possesses a lucrative private practice, his youthful enthusiasm is past, and the training which he has received has not been conductive to the best development.

The medical school should possess the power of appointment in hospitals, and the appointments should be made on merit alone. If it is not possible to obtain control of all appointments of a hospital, university clinics, consisting of a certain number of beds controlled by the medical school, should be established. The hospital will surely benefit by the introduction of new men with new ideas, and who have developed in different surroundings. Such men must be of recognized ability, for no other consideration should dictate their appointment by the medical school. The future and the highest development of medical education in this country is wholly controlled by hospital trustees.

The efficiency of laboratory teaching in most medical schools in this country far surpasses clinical teaching, and this is due to the fact that hospitals can not be used in the best manner for the study of disease. The greater ease of teaching the branches of medical education which lie outside of hospital work has led to giving relatively too great prominence to anatomy, physiology and pathology. The same discipline which is given in these branches can be given in clinical medicine, with the advantage that the student in clinical medicine has constant exercise in methods which he must constantly use when he leaves the medical school. We are beginning to see that the same method of study, placing the student in close relation with the objects studied, which is used in anatomy, physiology and pathology, can be used in clinical teaching, and the clinic can never reach its true dignity and importance until this method is adopted. Disease can not be studied at long range. The tendency on the part of the hospital trustees to discourage the study of disease in the wards is to some degree passing away, and it is to be hoped that in the future they will come to see that the greatest good accomplished by a hospital can take place only when the hospital appointments are given in the interests of medical teaching and its wards are fully used for the study of disease.

In submitting this curriculum of study, I have been guided in part by personal knowledge of what has worked well, and in part by the views as to the division of subjects and time in medical schools in which teaching is efficient. In the first two years of study I have given almost the arrangement of studies which is used in the Harvard Medical School and which has given good results. In this arrangement the work of the student is on one subject at a time. He studies the form and structure of the material in anatomy, the function in physiology, the disorders of form and function and their causes in pathology. The second half of the second year is devoted chiefly to the study of clinical methods, which will be used in the third and fourth years. The advantages of this method of concentrating study on one subject are: 1. It is found to work well; 2, the student keeps up his interest better and makes better progress; 3, teaching and study can be made more thorough; 4, the work of individual students can be better controlled; 5, it facilitates research by the teachers by giving time apart from teaching which can be devoted to research; 6, it is economical of time, the student loses much time in other methods by frequent changes of place and subject; 7, it is economical of space, the same teaching laboratories can be used at different times of the year for different subjects. One of the disadvantages urged against it is that the student memorizes a subject and then without constant repetition forgets it. If it were possible to teach medical science by exercises based on the memory this might be so.

I have regarded the year as giving 1,245 hours of work, allowing for the usual holidays and leisure hours in the day. In addition to the regular curriculum, special lectures or courses of lectures on subjects on which the lecturers have special knowledge sh[illegible] Such lectures can be attended by both teac[illegible] In clinical studies I have included large [illegible] in medicine, surgery and neurology. Such [illegible] the place of didactic lectures in these subjects. I have also included a weekly demonstration in pathologic anatomy. In such demonstrations the relation between the clinical phenomena and the lesions demonstrated should be held in view.

It is essential that every student must have during the third and fourth year a place in a laboratory and be provided with a microscope and clinical reagents in order that he can make at his convenience the necessary examinations of the products of disease in cases which he is studying. By making such work a matter of routine he obtains a proper reliance on methods, and will continue in them after leaving the medical school.

### FIRST YEAR.

*First half year:* Anatomy (organology, histology, embryology), 624.

*Second half year:* Physiology, 384; physiologic chemistry, 240.

### SECOND YEAR.

*First half ye*[illegible] and microscopic), including bacteriology an[illegible]

*Second half* [illegible] is, 148; Pharmacology and toxicology, 126 [illegible] histology and pathology), 242; hygiene, 4[illegible] 60. Total, 624.

### THIRD YEAR.

*Medicine:* (a) Clinics, 64; (b) O. P. D., 248; (c) clinical microscopy, 288; (d) practical therapeutics, 48.

*Neurology:* (a) Clinics, 32; (b) O. P. D., 181; (c) neuropathology, 45.

*Surgery:* (a) Clinics, 64; (b) O. P. D., 200; (c) operative surgery on animals, 14.

*Obstetrics:* (practical work). Six cases for each student.

Special lectures on general medicine (fever, edema, comparative etiology of infectious disease, etc.), 32.

*Pathology:* (Demonstrations of gross material), 32.

### FOURTH YEAR.

*Medicine:* (a) Clinics, 32; (b) wards and laboratories, 330.

*Psychiatry:* (a) Lectures, 16; (b) ward visits, 48.

*Pedriatics:* (a) Clinics, 32; O. P. D., 32.

*Dermatology:* (a) Clinics, 32; (b) O. P. D., 80.

*Surgery:* (a) Clinics, 32; (b) wards and operating room, 180; (c) G. U. Surg. Clinics, 32; (d) G. U. Surg. O. P. D., 64; (e) Orthopedics (lectures, clinics or demonstrations), 32.

*Obstetrics:* (a) Obstetrical wards, 32.

*Gynecology:* (a) Gynecologic pathology, 32; (b) wards and operating room, 64.

*Ophthalmology:* (a) Lectures, 16; (b) O. P. D., 32.

*Otology:* (a) Lectures, 16; (b) O. P. D., 32.

*Laryngology:* (a) Lectures, 16; (b) O. P. D., 32.

*Pathology:* (Demonstrations of gross material), 32.

## PART II.—BY DR. FRAZIER.

There has never been a decade in the history of medical education in which more time and thought has been given to the subject than during that which has just passed. This has been due, in part, to the healthy rivalry that exists between the various medical schools; in part to the enormous additions which have been made to the material equipments and endowments, and in part to the stupendous increase in the sum of medical knowledge, necessitating a complete reorganization of the methods of instruction.

It may be truthfully said that on the essential points in the construction of medical curriculum the minds of those who have given to the subject their especial attention are beginning to crystallize. It is therefore possible to present a scheme for an ideal course to which few will take exception in any of its essential particulars. One of the most important duties of this Council, second only to the adoption of a minimum standard of requirements for admission to medical schools, is to bring to the attention of medical schools the desirability of having a uniform standard, and having framed one, the Council should use its influence through the proper channels to secure its adoption.

To make a standard curriculum possible, two questions must be settled at once: what subjects must be taught in each of the four years, and how much time should be devoted to each and what disposition should be made of the allotted time.

The assignment of subjects in the first two years will be a matter of little difficulty whether the concentration or the semi-concentration plan is adopted. The logical arrangement would place in the first year anatomy and chemistry, with, possibly, bacteriology, and in the second year physiology and pathology. In the second half of the second year the student, in addition to the above studies, should receive a thorough course in physical diagnosis in order that he may be able to begin intelligently his clinical observations at the beginning of the third year. The course in hygiene and pharmacology may be included in this period.

The third year should be given over in a large measure to clinical studies; it should be regarded as the period of transition from the practical exercises in the fundamental subjects of the first two years to the purely practical exercises of the clinical subjects of the last year. In this year should be included the systematic courses in medicine, surgery and obstetrics, partly didactic and partly clinical, the latter including as much practical instruction in the wards and out-patient departments as time will allow. It should include, further, courses in which the course, as physics. How medical men can be fitted for the duties of the profession without any adequate knowledge of physics is a question frequently asked of us by French and German teachers, for in these countries the medical students take the thorough courses given in this subject to those who are working for the higher scientific degrees. In most medical schools in this country the most superficial courses in physics in high schools, often without any laboratory work, are accepted for matriculation, and no instruction in this branch is given in the medical curriculum, and yet a knowledge of this subject is needed in the application of all mechanical means for the correction of deformities, for the treatment of fractures and dislocations, for the study of errors of refraction, and in the use of the microscope, ophthalmoscope, laryngoscope, Finsen light, *x*-ray, etc. College or advanced physics should be either required for admission or given in the medical curriculum.

The requirement in chemistry for admission to most of our medical schools is well-nigh worthless, and the instruction in this subject and its numerous branches in our medical curricula is often of but little value, embracing, as it does, one or possibly two semesters of lectures, with demonstrations covering the whole range of general, analytical, physiologic and toxicologic chemistry, supplemented by a brief course in the laboratory of analytical chemistry. How can it be expected that one whose knowledge of chemistry is thus limited should comprehend Ehrlich's side-chain theory or have any comprehension of food principles, to say nothing of their assimilation and utilization in the human body. A knowledge of the fundamental facts and theories of general chemistry should be required for admission, and either before or after admission each student should be thoroughly instructed in the theories of organic chemistry and the general principles of physiologic chemistry and to some extent in the methods of toxicologic investigation.

The prospective medical student should have a broad and comprehensive knowledge of general biology, a subject which is now taught quite adequately only in the best high schools. This instruction should be, in part at least, given in the laboratory. This furnishes a good basis for both the morphologic studies, as histology, embryology and bacteriology, and for those of physiology and physiologic chemistry that come in the medical curriculum.

To sum up this part of the subject, we think that the following should constitute the requirements for admission for the present to our medical schools:

1. At least three years of English, including grammar, rhetoric and logic. To this a year or more of English literature might be added with advantage.

2. At least two years of Latin, including the grammar, composition and at least four books of Cæsar We believe that four years of Latin will be all the better, but the shorter course might be permitted as a minimum.

3. We regard an easy reading knowledge of German of great value to the medical man, and if the same familiarity with French be added, when he enters the profession he will have his own indolence to blame if he does not keep abreast of professional advance.

4. Mathematics should be pursued through higher arithmetic, school algebra, geometry and trigonometry.

5. The fundamental facts and theories of physics, chemistry and general biology should be impressed by laboratory instruction.

6. The medical man should not be lacking in general knowledge and he should be expected to be informed in descriptive and political geography and in the history not only of his own country, but of the world.

Experience has shown that it is easy to get medical schools to place requirements on paper, but more difficult to have them enforced. For this reason we look with favor on the enactment of laws taking the decision on preliminary requirements out of the hands of medical faculties and placing it on official boards, and, although the official standard may be too low, as it certainly is in at least one state, its enforcement is more certainly secured. We can see no reason why our country should not have the best medical schools in the world, and if four years be too short a time to secure such a training let us lengthen the time either by requiring more thorough collegiate training of our matriculates or by adding a year to the medical curriculum. Let us elevate the profession and leave it on a higher plane than we found it.

(Signed) Victor C. Vaughan.
J. A. Witherspoon.

The discussion of this report was opened by Prof. Richard D. Harlan, President of Lake Forest College. He said that these preliminary studies in science should be taught as pure science entirely, and that the liberal arts college is better prepared to do this than is the medical college. By delegating this work to the liberal arts college, the medical college will relieve congestion in the first year of its curriculum.

Dr. S. D. Van Meter, Colorado, called attention to the fact that the majority of states require some evidence of the moral standard of the applicant; therefore, it might be well, for those in charge of deciding the question of preliminary education, to keep this fact in mind and select men who have the proper breeding to fit them for a college course.

Dr. A. F. Barrow, Louisiana, said that their state board has noted the advancement of the medical education of students presenting themselves for licensure, but that they also noted an absolute disregard on the part of some medical colleges of the educational requirements for matriculation. For this reason his board refuses to recognize the graduates of two colleges. That condition of affairs might easily be corrected by the co-operative influence of the American Medical Association, through the Council on Medical Education, by requiring that entrance certificates come from somebody, such as the board of medical examiners of a state, a certificate from whom will admit to a medical college.

Dr. L. C. Webster, Indiana, referred to the matriculation requirements of the Indiana State Board of Examiners. In order for a college to turn out good material, it must start with good material. Indiana is ready to co-operate with other bodies to attain the accomplishment of this object.

Dr. S. C. Baker, South Carolina, suggested that a knowledge of Greek is fully as essential as a knowledge of Latin, French or German; hence, it would be advisable to include Greek in the preliminary requirements. South Carolina requires of applicants for licensure evidence of graduation from a medical college of established reputation, and of possessing sufficient preliminary education, at least a first-grade teacher's certificate granted by a county or state superintendent of education.

Prof. J. H. T. Main, Grinnell College, proposed offering an option between Latin and Greek. The latter is a creative language and the fundamental terms in anatomy, bacteriology, chemistry, etc., are absolutely Greek. Hence there is good reason why, if emphasis is put on any ancient language, there should be an option between Latin and Greek.

Dr. G. W. Webster, Illinois, said that, while there has been much talk about raising standards, no real standard has as yet been established.

The report was also discussed and commended by Drs. J. M. Dinnen, Indiana; H. E. Currey, Oregon; H. M. Wheeler, North Dakota; F. W. Powers, Iowa, and A. B. Somers, Nebraska.

The report of the subcommittee on curricula was presented by Dr. Charles H. Frazier.

### Report of Subcommittee on Medical Curriculum.

Your subcommittee on the medical curriculum begs leave to present its report in two sections. From a study of the catalogues and from his knowledge of the training of most medical schools, Dr. Councilman found, in attempting to form what seemed to be an ideal curriculum, that there were certain difficulties in the way of putting into successful operation the best methods of medical education. These he believed to be mainly two: First, there is a lack of appreciation of the true methods of medical education; second, the relation of medical schools and hospitals, the latter practically controlling the appointments in the schools, prevent proper methods from being carried out. As a preface, therefore, to the curriculum which he proposes for consideration, he presents his views on the conditions underlying medical education.

The second section of the report, which was prepared by Dr. Frazier, contains an expression of opinions with reference to the methods of formulating a standard curriculum, and submits for consideration a curriculum which in essential particulars corresponds to that of Dr. Councilman.

Your committee has studied carefully the catalogues of the majority of the medical schools, and is struck with the great variations, not only in the arrangement of the course, but in the methods of instruction, as well as in the hours which are allotted to each. Thus, for example, in some schools anatomy is taught in the first three years, and in others only in the first year. In some only 20 lectures are given; in some 160 hours; in some only 174 hours are allotted to practical work, and in some 522 hours. In some schools no lectures are given in histology, and in others 128; in some but few hours in practical work, in others 288. Bacteriology is taught in different schools in the first, second, third and fourth years of the curriculum; in some instances with no practical work at all. In medicine the number of clinics varies from 32 to 288, and the lectures from 20 to 140; and in surgery the number of clinics varies from 48 to 288, and the lectures from 28 to 192. These data are sufficient to bring out the wide discrepancy that exists, and serve as an argument for the necessity of reform.

### PART I.—BY DR. COUNCILMAN.

The object of medical education is to train individuals so that they may be of service in combating disease. Some of the individuals so trained will deal with the great questions of disease as it affects the general public; some will seek by the experimental study of disease to increase knowledge; but by far the greatest number will deal with disease in the individual. The same methods of education are applicable to all.

Tact, sympathy, generosity of character, knowledge of human nature, all qualities of the highest importance in determining the usefulness of the physician, can not be taught in the medical school. These qualities are partly innate, partly the result of culture.

The student may acquire in the medical school knowledge of disease and proficiency in the use of methods by means of which knowledge is acquired. Knowledge in medicine, as in any other branch of science which deals with things, is derived from the study by the senses of objects and the phenomena exhibited by them. The study is aided by various methods, by the use of which the territory covered by sense impressions is extended. From the interpretation of sense impressions and by analogy, hypotheses may be formed which are to be tested by experiment and future observations. The experiment is also of great value in enabling observations under known conditions to be made. The study of disease is difficult because of our lack of knowledge of the living tissues and the conditions acting on them to which the disease is due. Every day teaches us more of the complexity of the tissues and fluids of the body, and we are only beginning to understand how complex are the relations between living tis-ing the subjects embraced in the first two years of the medical curriculum ought to give their whole time to teaching and research work. The only way to determine that colleges are doing good work is by actual and efficient inspection, to be conducted under the auspices and by the authority of the state licensing and examining bodies.

Dr. A. F. Barrow, Louisiana, proposed to raise the standard of medical education by raising the standard of medical preparation. It is most important what shall be required of the applicant for matriculation in a medical college. When medical colleges will refuse to matriculate all but those possessing the education necessary to pursue intelligently the study of medicine, two-thirds of the colleges will be eliminated.

Dr. L. C. Webster, Indiana, agreed that inspection of medical colleges would be most valuable, but a minimum standard of equipment should be agreed on so that the boards would have some guidance in their action.

Dr. S. D. Van Meter, Colorado, suggested strengthening the power of the boards to enforce not only standards of education and equipment, but also the granting of licenses. Every applicant for licensure should make affidavit that he has complied with the preliminary requirements of the board, and that the college from which he has graduated enforces these requirements, making it a penalty of forfeiture of his license and penal servitude of ten years for violation of the law.

Dr. G. C. Savage, Tennessee, spoke of the conditions in the South as compared with those of the North, and the work of the college associations and its recognition by the various state boards. He appealed to the committee in the name of the southern medical colleges not to recommend any advancement in preliminary requirements or curriculum until two years hence, because the South is not ready for it. He said the inspector of medical colleges should not be an individual, because on making an unfavorable report, a suit might be filed against him. Therefore, if an inspector is appointed to look into the equipment and teaching facilities of institutions he must represent a corporate body, and there is no better than the American Medical Association.

### The Relation Between the College of Liberal Arts and the Medical School.

Prof. J. H. T. Main, Grinnell College, Iowa, discussed this question from three propositions: 1. The tremendous increase in the field of knowledge. 2. Increasing demands made by the public on educated men. 3. Comparative inadequacy of individual men to meet these demands.

Dr. L. F. Barker, University of Chicago, considered the question from the standpoint of the medical school, the college of liberal arts, and the state examining and licensing boards. He said that the state boards prescribed too literally the subjects which men must take in the medical school. Such regulations deprive students of the possibility of election, and it also makes it impossible for colleges to develop their curriculum in accordance with progressive ideas of medical education.

### Reciprocal Registration.

Dr. A. Vander Veer, New York, discussed in full the methods adopted by the University of the State of New York for establishing reciprocity.

Dr. George W. Webster, Illinois, referred to the heterogeneous conditions existing and the large number of associations dealing with this problem from different view points. Reciprocity may be brought about more rapidly than is being done at present by education and evolution, by harmonizing discordant elements. All associations concerned with elevating the standard of medical education are working toward this end, but each body sets up its own standards and ignores those of others. He urged that the Committee on Medical Education make a persistent effort to obtain the co-operation of all the other associations and to merge them into this committe, which, representing the American Medical Association, is the proper organization to do this work. Instead of having many organizations with varying standards, there would be a single organization, with one standard, carrying on this work under the guidance of the American Medical Association, which is ready to carry on this kind of work along these lines. The committee should be empowered to visit every medical college in the country, and should furnish state boards with all the information they may desire. As a rule, state boards are not very familiar with the laws of other states, and this committee could furnish the boards with the necessary information. In that way more could be done in five years to bring about reciprocity than can be done under present conditions in twenty-five years.

Dr. William F. Bailey, Kentucky, said that reciprocity must come through the influence of the American Medical Association. If the Council on Medical Education will go before the profession and urge better entrance qualification and better courses of study in medical colleges, it will eventually bring about the desired result.

### Co-operation Between the American Medical Association and the Licensing Boards.

Dr. L. S. McMurtry, President of the American Medical Association, briefly reviewed the history of the Association, its scope, the work done by it, and its power as a factor in medical education as well as in professional standing. In connection with this question it is necessary, he said, that the Association exert its influence in establishing and developing a strong public sentiment in the medical profession that will co-operate in establishing the advances desired.

Dr. George H. Simmons, Secretary of the American Medical Association, said that the real first step that will result in practical benefit to all concerned was the creation of the Council on Medical Education, whose function it is to bring together and co-ordinate various enterprises so that definite, tangible results may be obtained. In order to bring the various boards together it is necessary to have some means of communication that is accessible to all, and the American Medical Association will be ready to assist in this work. There must be a central body through which all the licensing boards can work, a body something like the Medical Council of England, whose visitors inspect all the colleges. The boards can not pay to have this work done, and the college associations can not afford to have it done very long.

Dr. Van Meter, Colorado, urged to place in the hands of the American Medical Association certain powers, and on behalf of the Colorado state board promised its co-operation in this work. He urged that the committee prepare a treatise for state examining boards on the following subjects: 1. Range of the police power of licensing boards. 2. Methods of procedure in conducting the trials of offenders against the medical laws. 3. Salient points relating to the reliability of evidence. 4. Best methods of examining the credentials of applicants for licenses to practice medicine. 5. Standard of credentials to be accepted as proof of moral and educational qualifications without a technical examination. 6. Detailed report on medical colleges and state boards which maintain a high standard. 7. Suggestions for the preparation of examination questions and for the exclusion of "catch" questions. 8. Suggestions for the improvement of the personnel of examining boards.

Dr. William C. Woodward, D. C., said that no amount of education would result in reciprocity unless legislation is forthcoming, and that is the field for work for the American Medical Association in determining what legislation is necessary and desirable, so that state boards will have a basis for work.

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## BOSTON MEDICAL LIBRARY MEETING.

*Regular Meeting, held April 5, 1905.*

Francis B. Harrington, M.D., Chairman.

### *SYMPOSIUM ON RESULTS IN NON-TRAUMATIC SURGERY OF THE BRAIN AND SPINAL CORD.*

### Observation on the Actual Results Obtained at the Massachusetts General Hospital.

Dr. Ernest A. Codman explained that the figures which he presented were not selected cases but the ordinary record of the hospital and that as in several other papers read before these meetings during the past two years, the figures are available only by the courtesy of the staff. He suggested that probably better results could be attained if some one individual surgeon, specially interested in this branch of surgery, could have charge of all such cases. Various other elements will also contribute to better results: Better diagnosis not dependent on the long delay of the therapeutic test of potassium iodid; more frequent postmortem examinations; the prevention of shock and hemorrhage by the use of the pneumatic rubber tourniquet and the dental engine; the prevention of sepsis formerly so common and fatal. The statistics presented were as follows: Class 1.—Operations to remove tumor if possible, and if not, to relieve pressure symptoms, headache and failing eyesight: 28 cases, 7 deaths within two weeks, 11 patients not improved, 7 improved, 3 not traced. Class 2.—Operations to relieve pressure symptoms, headache and failing eyesight: 8 cases, 4 deaths within two weeks, 2 patients improved, 2 not traced Class 3.—Operations for the relief of epilepsy, usually post-traumatic: 21 cases, no deaths within two weeks, 12 patients not improved, 9 improved. Class 4.—Operations for the drainage of cerebral abscess: 6 cases, 5 patients died within two weeks, 1 was improved. The operation for epilepsy was usually to remove an old depressed fragment or to separate adhesions of the dura. The abscesses were chiefly mastoid. Dr. Codman considers it better to attempt palliative rather than radical operations, for the latter are very difficult and the former give relief. He also advises operation at a distance from the motor areas, which will give the same relief from pressure symptoms and avoids the danger of injury to the cortex or of hernia cerebri. Lumbar puncture as a means of relief of pressure has not been successful. Of 4 cases 2 patients died on the table and 1 while ether was being administered. Only three attempts were made to remove a tumor. Two patients died at once and in the other the tumor recurred.

#### DISCUSSION.

DR. JAMES J. PUTNAM said that there was no complete cure in any one of the 36 cases in Classes 1 and 2, but 9 patients were much relieved. One patient who had a sarcoma weighing one pound had complete relief for a year. Others were able to be about or were so far relieved that their care was much easier. We have reason to hope for better results in the future. Operation for epilepsy is beneficial in a fair proportion of cases.

### Results at the Boston City Hospital.

DR. WILLIAM N. BULLARD reported 44 cases, 39 being intracranial and 5 intraspinal. The intracranial included cases of epilepsy, headache, unconsciousness and intracranial growth, 4 of these latter being cerebral and 2 cerebellar. He confined his paper, however, to a discussion of the cases of epilepsy, 18 in number; 3 patients could not be traced. Twelve cases were traumatic; 8 patients were relieved by operation; 3 were not relieved and in 1 the result was doubtful. Three cases were non-traumatic; 2 patients were relieved by operation and 1 was not relieved. Four cases of cysts were found, 2 antemortem and 2, both multiple, postmortem. Results of operation for epilepsy may be long delayed.

### Removal of Tumor of the Cerebrum and of the Cerebellum.

DR. F. B. LUND said that the technic of craniotomy has been much improved, and that it' is often possible to remove cerebellar tumors. The dura should not be sutured. He reported 10 operations; 6 of the Boston City Hospital and 4 of his own. Six were for the removal of tumors of the cerebrum and 4 for tumors of the cerebellum. Of the 6 cerebral operations 3 patients died on the table, of whom 2 were found to be inoperable at autopsy. One patient was improved; 1 was not improved. 'Three cerebellar operations were fatal, but the patients all had delayed operation long after it was advised.

DR. W. B. ODIORNE reported 3 cases of intraspinal tumors operated on by Dr. J. C. Warren. Two were extramedullary and operable, 1 intramedullary and inoperable. In the first one a tumor at the level of the ninth dorsal vertebra was easily freed.

### The Findings at Autopsy in Cases of Brain Tumor, and Their Bearing on the Selection of Operable Cases.

DR. GEORGE L. WALTON said that cases may be classed as: 1, operable; 2, inoperable; 3, doubtful. 1. This includes chiefly cases of tumor of the dura—endotheliomata. 2. This includes tumors involving deeper structures. 3. Tumors which are near the surface and in accessible locations. He has studied 171 cases of autopsy reports from the Massachusetts General Hospital, Boston City Hospital, other hospitals and his own records not elsewhere reported, and has included other reports to make a total of 374 cases. Of these 25 were operable, 300 inoperable and 49 doubtful. In searching for a tumor, exploration on the surface is wiser than puncture, which is only valuable for a cyst and should always be preceded by the surface exploration. Gumma is rare. It has not been met at autopsy at the Massachusetts General Hospital since 1896. He urged surgeons to persist in the use of the best methods of diagnosis, location and operation and not to be discouraged by a single failure.

### Results of Operation in Mastoid Abscess.

DR. FRED L. JACK spoke as an otologist on the results of operation on mastoid abscess. He reported 14 cases occurring at the Massachusetts Eye and Ear Infirmary, of which only one patient recovered, and 15 at the Massachusetts General Hospital of which only one recovered. He enters under the lobe of the ear, through the temporo-sphenoidal lobe, from one-fourth to one inch below the surface. He believes that imperfect drainage is responsible for some of the failures and advocates a rubber drainage tube.

### Brain Tumor Operated On.

DR. JOHN R. BOTTOMLEY reported from the Carney Hospital 12 cases of brain tumor; 10 patients were operated on; 6 were trephined, 2 trephined and tapped, and 2 trephined and tumor removed. There were 5 deaths within a few days or months, 2 patients had no relief and 3 were relieved of pressure symptoms. There were 4 cases of cysts. All patients were operated on and the cysts drained; 1 died, 3 were relieved. There were 10 operations for epilepsy; 8 patients were trephined and 2 were trephined and drained. There were no deaths. Two patients were much relieved, 5 were slightly relieved and 3 were not relieved. One patient with spinal tumor was operated on with much relief. One patient with chronic pachymeningitis was operated on with relief. It is advisable to use potassium iodid for a definite period, but few cases are helped by this method.

### Cerebellar Tumors and Intraventricular Pressure.

DR. MORTON PRINCE said that cerebellar tumors cause intraventricular pressure and require tapping. He urged the necessity of surgeons being better neurologists so that they may know the reasons for their technic. Much harm results from indiscriminate probing and no good.

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## TENNESSEE STATE MEDICAL ASSOCIATION.

*Seventy-second Annual Meeting, held at Nashville, April 11-13, 1905.*

*(Concluded from page 1391.)*

### Treatment of Hypertrophied Tonsils.

DR. J. F. HILL, Memphis, entered a protest against the promiscuous and wholesale excision of children's tonsils. There are three kinds of diseased tonsils: First, a tonsil which is constantly swollen, red and easily irritated. This tonsil is of a specific, scrofulous, or tuberculous nature. 2. A tonsil which is diseased in the interior, which forms occasionally an acute abscess. 3. A tonsil with ulcers on the surface, which may be either indolent or active. Tonsils under the first head should be treated by complete excision. Tonsils of the second variety are diseased internally; have openings leading from the surface to the interior, and at the bottom of these openings there is a quantity of fungous tissue, with the formation of acute abscesses. These openings to the tonsils allow the escape of

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 80 | Department of | | | | | | | | | | | | | | | | |
| | Miss | | | | | | | | | | | | | | | | |
| 81 | Medical Dept., University of xford.—R | | | | | | | | | | | | | | | | 81 |
| | Miss | | | | | | | | | | | | | | | | |
| 82 | Medico-Chirurgical College.—R | | | | | | | | *1* | *0* | 3 | *3* | | | | 2 | 82 |
| 83 | University Medical College of Kansas City.—R | | | 1 | | | | | *1* | *0* | 20 | *6* | 9 | 5 | 35.7 | 10 | 83 |
| 84 | Kansas City Hahnemann Medical College.—H | | | | | | | | | | 1 | | 0 | 1 | 100. | 1 | 84 |
| 85 | Kansas City Medical College.—R | | | | | | | | | | 19 | *8* | 4 | 7 | 63.6 | 8 | 85 |
| 86 | Eclectic Medical University.—E | | | | | | | | | | | | | | | | 86 |
| 87 | Central Medical College.—R | | | | | | | | | | 8 | *2* | 1 | 5 | 83.3 | 4 | 87 |
| 88 | Ensworth Medical College.—R | | | | | | | | | | 6 | *3* | 3 | 0 | 0. | 3 | 88 |
| 89 | Barnes Medical College.—R | | | | | | | | | | 18 | *6* | 6 | 6 | 50.0 | 11 | 89 |
| 90 | Marion Sims-Beaumont College of Medicine.—R | | | | | | | | | | 15 | *7* | 6 | 2 | 25.0 | 10 | 90 |
| 91 | Physicians and Surgeons.—R | | | | | | | | *1* | *0* | 10 | *3* | 3 | 4 | 57.1 | 9 | 91 |
| 92 | ollege.—E | | | | | | | | | | 6 | *3* | 1 | 2 | 66.7 | 4 | 92 |
| 93 | College of Missouri.—H | | | | | | | | *1* | *0* | 3 | *3* | | | | 2 | 93 |
| 94 | Washington University.—R | | | | | | | | *1* | *0* | 22 | *8* | 8 | 6 | 42.9 | 12 | 94 |
| 95 | University of the State of Missouri.—R | | | | | | | | | | 2 | *2* | | | | 2 | 95 |
| | NEBRASKA. | | | | | | | | | | | | | | | | |
| 96 | University of Nebraska College of Medicine.—R | | | | | | | | *1* | *0* | 10 | *5* | 3 | 2 | 40.0 | 6 | 96 |
| 97 | John A. Creighton Medical College.—R | | | | | | | | | | 3 | *1* | 2 | 0 | 0. | 2 | 97 |
| 98 | Lincoln Medical College of Cotner University.—E | | | | | | | | *1* | *0* | 2 | *1* | 1 | 0 | 0. | 2 | 98 |
| | NEW HAMPSHIRE. | | | | | | | | | | | | | | | | |
| 99 | Dartmouth Medical College.—R | | | | | | | | | | 3 | *1* | 1 | 1 | 50.0 | 3 | 99 |
| | NEW YORK. | | | | | | | | | | | | | | | | |
| 100 | Albany Medical College.—R | | | | | | | | | | 5 | | 2 | 3 | 60.0 | 3 | 100 |
| 101 | College of Physicians and Surgeons.—R | | | 1 | 0 | | | 0 | | | 24 | *7* | 15 | 2 | 11.8 | 10 | 101 |
| 102 | Cornell University Medical College.—R | | | | | | | | | | 2 | | 1 | 1 | 50.0 | 2 | 102 |
| 103 | Eclectic Medical College.—E | | | | | | | | | | 2 | | 2 | 0 | 0. | 2 | 103 |
| 104 | Long Island College Hospital.—R | | | | | | | | | | 4 | *1* | 3 | 0 | 0 | 4 | 104 |
| 105 | New York Homeopathic Medical College and Hospital.—H | | | 1 | 0 | | | | | | 5 | *1* | 4 | 0 | 0 | 5 | 105 |
| 106 | New York Medical College and Hospital for Women.—H | | | | | | | | | | | | | | | | 106 |
| 107 | University and Bellevue Hospital Medical College.—R | | | 2 | 0 | 1 | | | *1* | *0* | 52 | *11* | 30 | 11 | 26.8 | 27 | 107 |
| 108 | Syracuse University College of Medicine.—R | | | | | | | | | | 3 | *1* | 2 | 0 | 0 | 3 | 108 |
| 109 | University of Buffalo, Medical Department.—R | | | | | | | | | | 8 | *2* | 5 | 1 | 16.7 | 5 | 109 |
| | NORTH CAROLINA. | | | | | | | | | | | | | | | | |
| 110 | Leonard Medical School, Shaw University.—R | | | | | | | | | | | | | | | | |
| 111 | Wake Forest School of Medicine.—R | | | | | | | | | | | | | | | | |
| 112 | North Carolina Medical College.—R | | | | | | | | | | | | | | | | |
| 113 | Medical Department, University of North Carolina.—R | | | | | | | | | | | | | | | | 113 |
| | OHIO. | | | | | | | | | | | | | | | | |
| 114 | Western Reserve University Medical College.—R | | | | | | | | | | 6 | *1* | 4 | 1 | 20.0 | 6 | 114 |
| 115 | Cleveland College of Physicians and Surgeons.—R | | | | | | | | | | 4 | *1* | 2 | 1 | 33.3 | 3 | 115 |
| 116 | Cleveland Homeopathic Medical College.—H | | | 0 | 1 | | | | | | 5 | *2* | 0 | 3 | 100. | 4 | 116 |
| 117 | Eclectic Medical Institute.—E | | | | | | | | *1* | *0* | 8 | *2* | 3 | 3 | 50 | 5 | 117 |
| 118 | Medical College of Ohio.—R | | | | | 1 | | | | | 14 | *7* | 6 | 1 | 14.5 | 7 | 118 |
| 119 | Pulte Medical College.—H | | | | | | | | | | 2 | *1* | 0 | 1 | 100. | 2 | 119 |
| 120 | Miami Medical College.—R | | | | | | | | | | 9 | *3* | 4 | 2 | 33.3 | 8 | 120 |
| 121 | Ohio Medical University.—R | | | | | 1 | | | | | 20 | *2* | 11 | 7 | 38.9 | 14 | 121 |
| 122 | Starling Medical College.—R | | | | | | | | | | 13 | *5* | 5 | 3 | 37.5 | 6 | 122 |
| 123 | Toledo Medical College.—R | | | 0 | 1 | | | | | | 2 | *1* | 0 | 1 | 100.0 | 2 | 123 |
| | OKLAHOMA. | | | | | | | | | | | | | | | | |
| 124 | University of Oklahoma, Norman | | | | | | | | | | | | | | | | 124 |
| | OREGON. | | | | | | | | | | | | | | | | |
| 125 | University of Oregon, Medical Department.—R | | | | | | | | | | 1 | *1* | | | | 1 | 125 |
| 126 | Medical Department, Willamette University.—R | | | | | | | | | | | | | | | | 126 |
| | PENNSYLVANIA. | | | | | | | | | | | | | | | | |
| 127 | Temple College of Philadelphia, Dept. of Medicine.—R | | | | | | | | | | | | | | | | 127 |
| 128 | University of Pennsylvania, Department of Medicine.—R | | | | | 1 | | | | | 15 | *2* | 12 | 1 | 8.3 | 7 | 128 |
| 129 | Hahnemann Medical College and Hospital.—H | | | | | | | | | | 3 | *1* | 1 | 1 | 50.0 | 3 | 129 |
| 130 | Jefferson Medical College.—R | | | | | | | | *1* | *0* | 28 | *8* | 14 | 6 | 30.0 | 16 | 130 |
| 131 | Woman's Medical College of Pennsylvania.—R | | | | | | | | | | 6 | | 5 | 1 | 16.7 | 5 | 131 |
| 132 | Medico Chirurgical College of Philadelphia.—R | | | | | | | | | | 4 | | 4 | 0 | 0 | 4 | 132 |
| 133 | Western Pennsylvania Medical College.—R | | | 1 | 0 | | | | | | 4 | | 2 | 2 | 50.0 | 3 | 133 |
| | SOUTH CAROLINA. | | | | | | | | | | | | | | | | |
| 134 | Medical College of the State of South Carolina.—R | | | | | | | | | | 2 | | 1 | 1 | 50.0 | 2 | 134 |
| | TENNESSEE. | | | | | | | | | | | | | | | | |
| 135 | Tennessee Medical College.—R | | | | | | | | | | 2 | | 1 | 1 | 50.0 | 2 | 135 |
| 136 | Knoxville Medical College.—R | | | | | | | | | | | | | | | | 136 |
| 137 | Medical Department of University of Nashville.—R | | | | | 2 | | | | | 8 | | 6 | 2 | 25.0 | 4 | 137 |
| 138 | Vanderbilt University Medical Department.—R | | | 1 | 0 | 3 | | | | | 23 | *1* | 20 | 2 | 9.1 | 13 | 138 |
| 139 | University of Tennessee, Medical Department.—R | 1 | 0 | | | 1 | | | | | 14 | *1* | 9 | 4 | 30.8 | 8 | 139 |
| 140 | Meharry Medical College.—R | 1 | 0 | | | | | | | | 3 | | 1 | 2 | 66.7 | 3 | 140 |
| 141 | Memphis Hospital Medical College.—R | | | | | 2 | | | | | 12 | *1* | 10 | 1 | 9.1 | 6 | 141 |
| 142 | University of the South.—R | | | | | | | | | | 3 | | 1 | 2 | 66.7 | 3 | 142 |
| 143 | Chattanooga National Medical College.—R | | | | | | | | | | | | | | | | 143 |
| 144 | Chattanooga Medical College.—R | | | | | | | | | | 10 | | 3 | 7 | 70.0 | 3 | 144 |
| 145 | University of West Tennessee, Medical Department.—R | | | | | | | | | | | | | | | | 145 |
| | TEXAS. | | | | | | | | | | | | | | | | |
| 146 | Medical Department Fort Worth University.—R | | | | | | | | | | 1 | | 1 | 0 | 0. | 1 | 146 |
| 147 | University of Texas Department of Medicine.—R | | | | | | | | | | 1 | | 1 | 0 | 0. | 1 | 147 |
| 148 | Baylor University College of Medicine.—R | | | | | | | | | | | | | | | | 148 |
| 149 | Physio-Medical College of Texas.—P.M. | | | | | | | | | | | | | | | | 149 |
| 150 | Dallas Medical College.—R | | | | | | | | | | | | | | | | 150 |
| 151 | Gate City Medical College, Texarkana.—R | | | | | | | | | | | | | | | | 151 |
| 152 | Southwestern University Medical College, Dallas.—R | | | | | | | | | | | | | | | | 152 |
| 153 | Bell Medical College, Dallas.—R | | | | | | | | | | | | | | | | 153 |
| | VERMONT. | | | | | | | | | | | | | | | | |
| 154 | University of Vermont Medical Department.—R | | | | | | | | | | 13 | | 4 | 9 | 69.2 | 7 | 154 |
| | VIRGINIA. | | | | | | | | | | | | | | | | |
| 155 | Medical College of Virginia.—R | | | | | | | | | | 4 | *1* | 3 | 0 | 0. | 4 | 155 |
| 156 | University College of Medicine.—R | | | | | | | | | | 1 | | 1 | 0 | 0. | 1 | 156 |
| 157 | University of Virginia Department of Medicine.—R | 1 | 0 | | | | | | | | 5 | | 4 | 1 | 20.0 | 4 | 157 |
| | WEST VIRGINIA. | | | | | | | | | | | | | | | | |
| 158 | University of West Virginia, Morgantown | | | | | | | | | | | | | | | | 158 |
| | WISCONSIN. | | | | | | | | | | | | | | | | |
| 159 | Milwaukee Medical College.—R | | | | | | | | | | | | | | | | 159 |
| 160 | Wisconsin College of Physicians and Surgeons.—R | | | | | | | | | | | | | | | | 160 |
| 161 | Canadian Colleges | | | 1 | 0 | | | 0 | *1* | *0* | 38 | *9* | 28 | 1 | 3.4 | 20 | 161 |
| 162 | Foreign | | | 1 | 0 | 2 | | | *1* | *0* | 101 | *7* | 64 | 30 | 31.9 | 24 | 162 |
| | Totals by States | | 8 | | 19 | | 2 | 5 | | 25 | 1067 | | | | | | |
| | Totals—Registered by Diploma | | | | | | | | | *25* | | *243* | | | | | |
| | Totals—Examined—Passed | | 8 | | 14 | | 2 | 4 | | | | | 579 | | | | |
| | Totals—Examined—Failed | | 0 | | 5 | | | 1 | | | | | | 245 | | | |
| | Percentage of Failures | | 0 | | 26.3 | | 16. | .0 | | | | | | | 29.7 | | |

Figures in italics show those registered by diploma.

## BY STATE BOARDS DURING 1901.

| Total. | Registered on Diploma. | Examined—Passed. | Examined—Failed. | Percentage of Failures. | No. of States having Representatives. | Number. |
|---|---|---|---|---|---|---|
| 1 | .... | 1 | 0 | 0. | 1 | 1 |
| 4 | .... | 3 | 1 | 25.0 | 3 | 2 |
| 1 | .... | 0 | 1 | 100.0 | 1 | 3 |
| 2 | .... | 1 | 1 | 50.0 | 2 | 4 |
| 2 | 1 | 1 | 0 | 0. | 2 | 5 |
| 1 | 1 | .... | .... | .... | 1 | 6 |
| .... | .... | .... | .... | .... | .... | 7 |
| 1 | .... | 1 | 0 | 0. | 1 | 8 |
| .... | .... | .... | .... | .... | .... | 9 |
| 2 | .... | 0 | 2 | 100. | 2 | 10 |
| 5 | 2 | 3 | 0 | 0. | 4 | 11 |
| .... | .... | .... | .... | .... | .... | 12 |
| 1 | .... | 1 | 0 | 0 | 1 | 13 |
| 4 | .... | 4 | 0 | 0 | 3 | 14 |
| 4 | 1 | 3 | 1 | 25.0 | 5 | 15 |
| 7 | .... | 5 | 2 | 28.6 | 6 | 16 |
| 1 | .... | 0 | 1 | 100. | 1 | 17 |
| 6 | 1 | 4 | 1 | 20.0 | 4 | 18 |
| 2 | .... | 1 | 1 | 50.0 | 2 | 19 |
| 1 | 1 | .... | .... | .... | 1 | 20 |
| .... | .... | .... | .... | .... | .... | 21 |
| 3 | 1 | 1 | 1 | 50.0 | 3 | 22 |
| 5 | 1 | 4 | 0 | 0. | 5 | 23 |
| .... | .... | .... | .... | .... | .... | 24 |
| 23 | 6 | 12 | 5 | 29.4 | 13 | 25 |
| 8 | 5 | 2 | 1 | 33.3 | 4 | 26 |
| 3 | 1 | 1 | 1 | 50.0 | 3 | 27 |
| .... | .... | .... | .... | .... | .... | 28 |
| 2 | .... | 1 | 1 | 50.0 | 2 | 29 |
| .... | .... | .... | .... | .... | .... | 30 |
| 16 | 4 | 12 | 0 | 0 | 9 | 31 |
| 63 | 24 | 29 | 10 | 25.6 | 16 | 32 |
| .... | .... | .... | .... | .... | .... | 33 |
| .... | .... | .... | .... | .... | .... | 34 |
| .... | .... | .... | .... | .... | .... | 35 |
| 2 | .... | 1 | 1 | 50.0 | 2 | 36 |
| 5 | 5 | .... | .... | .... | 2 | 37 |
| 1 | .... | 0 | 1 | 100. | 1 | 38 |
| .... | .... | .... | .... | .... | .... | 39 |
| 2 | 1 | 0 | 1 | 100. | 2 | 40 |
| .... | .... | .... | .... | .... | .... | 41 |
| 3 | 2 | 1 | 0 | 0. | 2 | 42 |
| 17 | 8 | 6 | 3 | 33.3 | 9 | 43 |
| 2 | .... | 1 | 1 | 50.0 | 2 | 44 |
| 3 | 1 | 1 | 1 | 50.0 | 3 | 45 |
| 11 | 3 | 5 | 3 | 37.5 | 8 | 46 |
| .... | .... | .... | .... | .... | .... | 47 |
| 4 | .... | 2 | 2 | 50.0 | 2 | 48 |
| .... | .... | .... | .... | .... | .... | 49 |
| 3 | .... | 2 | 1 | 33.3 | 3 | 50 |
| 15 | 5 | 6 | 4 | 40.0 | 9 | 51 |
| 13 | 1 | 8 | 4 | 33.3 | 8 | 52 |
| .... | .... | .... | .... | .... | .... | 53 |
| 1 | 1 | .... | .... | .... | 1 | 54 |
| 23 | 8 | 8 | 5 | 46.7 | 13 | 55 |
| .... | .... | .... | .... | .... | .... | 56 |
| 2 | .... | 2 | 0 | 0. | 1 | 57 |
| 5 | 1 | 3 | 1 | 25.0 | 4 | 58 |
| 3 | .... | 3 | 0 | 0. | 2 | 59 |
| 10 | 2 | 6 | 2 | 25.0 | 10 | 60 |
| 6 | 1 | 1 | 4 | 80.0 | 5 | 61 |
| 19 | .... | 16 | 3 | 15.8 | 12 | 62 |
| 1 | .... | 1 | 0 | 0. | 1 | 63 |
| 1 | .... | 0 | 1 | 100. | 1 | 64 |
| 9 | 2 | 6 | 1 | 14.5 | 8 | 65 |
| 1 | 1 | .... | .... | .... | 1 | 66 |
| .... | .... | .... | .... | .... | .... | 67 |
| 7 | .... | 7 | 0 | 0. | 4 | 68 |
| .... | .... | .... | .... | .... | .... | 69 |
| 25 | 3 | 21 | 1 | 4.5 | 13 | 70 |
| 6 | .... | 1 | 5 | 83.3 | 4 | 71 |
| 12 | .... | 10 | 2 | 16.7 | 10 | 72 |
| 1 | .... | 0 | 1 | 100.0 | 1 | 73 |
| 5 | 2 | 3 | 0 | 0. | 3 | 74 |
| .... | .... | .... | .... | .... | .... | 75 |
| 25 | 3 | 15 | 7 | 31.8 | 13 | 76 |
| 2 | .... | 1 | 1 | 50.0 | 2 | 77 |
| .... | .... | .... | .... | .... | .... | 78 |
| 9 | 1 | 8 | 0 | 0. | 7 | 79 |
| 3 | 1 | 1 | 1 | 50.0 | 3 | 80 |

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diseased mucus from the interior of the tonsil. When these openings are closed from cold or otherwise, the mucus is retained and decomposition sets in: hence an abscess. Tonsils of the third variety can be relieved with 2 per cent. solution of nitrate of silver, but those of the second variety give more trouble. His treatment consists of passing a small curette through the openings into the bottom of the tonsil, and removing all the diseased or granular tissue, then carrying a 10 per cent. solution of nitrate of silver into the tonsil. This should be repeated in from three to six days, and continued until the tonsils are cured, which usually requires six treatments.

DISCUSSION.

Dr. J. T. Herron of Jackson emphasized the importance of removing hypertrophied tonsils and not allowing them to remain, thus weakening the mental and physical strength of boys and girls. He cited a number of cases on which he had operated with gratifying results.

Dr. G. C. Savage, Nashville, said it is a great mistake to allow children to go on from year to year with enlarged faucial tonsils, especially if they are subject to repeated attacks of inflammation. The only danger from clipping a tonsil is that of hemorrhage, and severe hemorrhage rarely occurs. A tenotome, shaped after the manner of the tonsillotome, is just as easy to use on the pharyngeal tonsil as the tonsillotome on the faucial tonsil.

Dr. T. J. Happel, Trenton, prefers Tiemann's tonsillotome for removing tonsils, but the practitioner should select that instrument which is best adapted to his use, then the work [illegible] be done more successfully.

### Gastric Dilatation Without Stenosis.

Dr. Fenton B. Turck, Chicago, cited the class of cases usually observed, and advanced the statement that many severe diseases may go on indefinitely without symptoms and without serious consequences, but as soon as there is gastric atony and dilatation the medical adviser is called in to the relief of pressing symptoms. In childhood the dilatation is usually acute, due often to indiscretions in diet, but the stomach ejects the cause of the trouble, giving itself the only remedy required—rest. In these cases the symptoms are mostly confined to vomiting and rarely prove troublesome. In adults the severest lesions may have been present for indefinite periods of time; gastroptosis from various causes; gastritis, either acute or chronic, including atrophy, and yet the symptoms be wholly absent. But when gastric atony with dilatation supervenes, there are at once symptoms of a most positive character, and many diseases that progress to a fatal ending without recognition are on postmortem examination discovered to be gastric atony with dilatation, the fundus of the stomach often resting on the pelvic apparatus. He outlined a number of experiments to show that it is not due to any stimulation of the stomach contents that causes the muscularis of the stomach to begin activity.

In dietetics, no fast and hard rule can be laid down, the prime requisite being to give the greatest possible amount of rest, the shortest possible period of muscular activity, and the most serviceable foods to maintain the strength of the patient. He prefers two meals daily at the outset of treatment, one in the morning and one in the evening. Theoretically, a liquid diet is preferable, but he employs solid food in a finely divided state, properly prepared, with a sufficient amount of liquid to aid the stomach in the maceration of the mass, so that it may be easily propelled into the intestines. Certain mechanical methods employed, such as lavage, galvanic and faradic electricity, exercise, and the more or less systematic bathings and drugs, he considers of very little value. The high frequency current with the Oudin resonator he has found sometimes of advantage as an adjuvant.

### Gastrointestinal Diseases of Children in Summer.

Dr. Zeb. L. Shipley, Cookeville, divided the acute diarrheas of infancy into two main classes, namely, those due to nervous origin, and those due to infection. Simple diarrhea is of nervous origin, manifested by an increased peristalsis caused by various conditions acting through the central nervous system or by the mechanical action of undigested food. Among the most important factors acting through the central nervous system are sudden changes in temperature, prolonged exposure to heat or cold, fright and fatigue. Food may fail of digestion from being unsuitable, or from the digestive organs being functionally weak. In either case the food becomes a foreign body. In this form of diarrhea the intestinal mucous membrane shows no pathologic lesion unless it be a slight hyperemia. The stools are increased in number and fluidity, and usually contain particles of undigested food. The chief factor in the treatment of this form of diarrhea is the removal of the cause, when the diarrhea usually ceases. But should it continue, the treatment must be directed to the control of the excessive peristalsis.

In the prophylactic treatment of infective diarrhea, the infant should have the best possible hygienic surroundings, be given plenty of fresh air and bathed frequently and fed carefully.

### How Shall We Feed and Treat the Baby?

Dr. Herman Hawkins, Jackson, laid down three cardinal rules: (1) A food should be given the baby which can be assimilated and given at regular intervals. (2) One should obtain the best possible hygiene of person and surroundings. (3) As little medicine as possible should be given.

### Amyloid Degeneration.

Dr. C. P. McNabb, Knoxville, defined this disease, then discussed its clinical history. Treatment consists of removal of the cause.

### The More Serious Complications of La Grippe.

Dr. E. A. Cobleigh, Chattanooga, said that one of the primal results of influenza which has been impressed on his mind is not simply the usual debility which accompanies most of the cases, but its indefinite persistence and extreme degree in many cases. The next condition, often occurring by itself, is marked by extreme nervousness. A third condition, not very frequent, but seen often enough to impress the clinician, is marked by mental involvement, occasionally amounting to prolonged delirium, to stupor a little short of coma, to hallucinations during or even after convalescence from the real attack, and rarely to mania or continuing insanity. One of the most impressive and rare complications of la grippe consists in extreme clonic spasmodic seizures involving the heart, the diaphragm and muscles of respiration, with perfect mentation during it all, but giving rise to the most pitiable agony of fear of impending death.

### The Clinical Significance of Ascites.

Dr. Raymond Wallace, Chattanooga, reported two cases. One case illustrated unusual difficulty in making an accurate diagnosis. The pronounced alcoholic history in this case with excessive peripheral arteriosclerosis, taken with the gastric symptoms and the presence of ascites, naturally led to a diagnosis of atrophic cirrhosis; and the absence of any cirrhotic changes in the liver is a point of interest. The disappearance of the miliary carcinosis of the peritoneum after scrubbing and exposure to the air presented a phase analogous to the operative cure of miliary tubercle of the peritoneum.

### Acute Septic Osteitis.

Dr. Jere A. Crook, Jackson, presented a specimen of a tubular sequestrum that he removed from a femur of a 10-year-old boy. This was a case of chronic osteomyelitis that had been discharging freely for several months. On cutting down on the femur a large cloaca was found, and a freely movable sequestrum. The opening was enlarged with a chisel, the sequestrum removed, and almost the entire cavity of the shaft curetted. It was irrigated and packed with gauze and allowed to granulate from the bottom. A second case was one of severe chronic osteomyelitis of the femur in a 12-year-old boy. The disease had existed for a year, and the necrosis had progressed so far that the shaft of the bone was entirely consumed for about two inches. The ends of the remaining bone in this case were rounded with bone forceps, all loose pieces removed, the two freshened ends put in apposition, drainage inserted, and the limb encased in splints. The result was unusually good. The bone united, the wound healed entirely the patient had a useful leg with only about three inches of shortening. Here amputation seemed indicated, but conservative treatment saved the limb. He has only amputated twice for osteomyelitis, and then after making every effort to save the limb.

### Prophylaxis of Tuberculosis.

At the evening session of the second day, to which the laity was invited, this subject was discussed, and speeches were made by Dr. J. A. Witherspoon, Rev. Collins Denny, Capt. A. J. Harris and Mr. G. H. Baskette.

### Gallstones in the Common Duct.

Dr. W. D. Haggard, Nashville, said that gallstones in the common duct have been found once in every five cases operated on by Robson, and once in every seven cases of the Mayos. It is estimated that 67 per cent. occur in the duodenal end, 15 per cent. in the hepatic end, and 18 per cent. in the middle of the choledochus. He spoke of the various sizes of these stones, and exhibited eight stones removed from the common duct, after the patient had passed 45 by the bowel during a period of five years, but had had no jaundice, except once for a period of two days. The duct was dilated so much that the bile escaped alongside the stones. Operation is not urged in acute obstruction by stone, but recommended in all cases that have been in existence for several weeks or longer, unless there are ecchymotic spots from long-standing cholemia. A quiescent interval between ague-like attacks and in the absence of jaundice, is recommended for operation, if such an interval can be attained. Choledochotomy and cholecystotomy were illustrated by large drawings. The Robson incision was recommended, and with a large cushion under the thorax the ducts can be brought almost to the surface by traction on the gall bladder and in a straight line; with the finger in the foramen of Winslow the stones could be palpated and extracted. The finger inserted into the duct, if possible, is said to be the best. The duct should be drained by tubage or gauze tied with catgut to the duct. Drains should be surrounded with gutta-percha tissue. Cholecystectomy is advocated if one is absolutely certain of the patency of the common duct, if the gall bladder is (a) contracted, suppurating, thick-walled and useless; (b) in gangrene; (c) neoplasms; (d) fistula into other viscera, and (e) in obstruction to the cystic duct. Robson's mortality in choledochotomy was 5 per cent. in the last 21 cases; 6.5 per cent. in 137 of Kehr's cases; 7 per cent. in 137 of the Mayos' cases, with an additional 4 per cent. who survived the operation, but died some weeks after. The Mayos did 30 consecutive cases without a death.

### Etiology and Pathology of Appendicitis.

Dr. Walter Lenehan, Nashville, found the following organisms in 12 cases: *Bacillus coli communis*, *Streptococcus pyogenes aureus*, *Staphylococcus pyogenes aureus*, *Bacillus influenzæ*, *Bacillus typhosus*, Klebs-Loeffler bacillus, *Bacillus tuberculosis*, and the *Diplococcus pneumoniæ*. Some non-pathogenic organisms, notably the gas bacillus and a few yeast fungi, were also found, but were invariably associated with one or more of the pathogenic organisms. The organism most frequently found was the colon bacillus. The author drew the conclusions that any micro-organisms capable of producing inflammatory changes in any other part of the body may also produce the same changes,in the appendix.

### Laryngeal Diphtheria.

Dr. O. H. Wilson, Nashville, emphasized the importance of early mechanical relief when mechanical obstruction threatens life. Rapidity of progress is the characteristic feature of laryngeal diphtheria. While in no other operation does skill show to better advantage, intubation is not a difficult procedure, but can be learned easily by practice. An early operation, though possibly awkward, is better than waiting to give a moribund case to an imported consultant. Moral: Do not wait; intubate.

### Tabes Dorsalis.

Dr. G. P. Edwards, Nashville, said that this disease predominates in males 10 to 1. A neuropathic heredity is an important predisposing factor. The disease may appear in childhod from hered~~itary syphilis,~~ but in the acquired form it occurs between 25 and 50 years of age; the greater propo tion occurring about the age of 40. The symptomatology tabes embraces almost every function in the body. The trea ment should be directed, first, to the removal of any syphilit processes present or suspected; to the improvement of tl general health, to stimulate the function of the cells impair but not lost, to encourage restoration of co-ordination in tl muscular system, and correct any incidental disorders whi may retard or complicate the desired result. The author b lieves that any stage or condition of tabes may be improv or benefited by properly directed treatment. The development the degenerative changes can be arrested completely in near every preataxic case, and that much of the impaired fun tion can be restored. He believes that these results may al be obtained in a large majority of the ataxic cases, and th this majority is reduced somewhat in proportion to the dur tion and intensity of the ataxia and the abuse of the speci remedies employed. The author's clinical observation, aggr gating 14 cases, has been uniformly satisfactory. In 9 case marked improvement in co-ordination, gait and general healt has persisted. In 5 cases the knee-jerk has been restored t normal; all painful sensory symptoms have disappeared; dri bling of urine has ceased, and little evidence of the disease r mains. In 2 cases the pupillary reflex to light has returne to normal. In 6 cases the Rhomberg sign is barely noticeabl with both feet close together and the eyes closed. In 2 case the patients can stand on one foot with the eyes closed. Th author has demonstrated, to his own satisfaction at leas that the *x*-ray, when of sufficient penetration to obliterat the shadow of bony structures, will stimulate cell activity i the diseased cord, facilitate the restoration of the lost func tion in cells not completely destroyed, and relieve the crise and other lightning pains.

### Alcoholic Insanity.

Dr. I. A. McSwain, Paris, offered the following suggestion on this subject: 1. The children of drunken and debauche parents ought to be taken away from them and placed i decent homes, or removed to industrial institutions provide by the state. This will check their hereditary tendencies t drunkenness, and therefore reduce the number being raised t become a burden to the state in the way of paupers, criminal and lunatics. 2. Young people, who early in life contract th pernicious habit of drinking, should also be removed from th temptation of their environment, and placed in institutions in which they should be taught some useful employment and restrained from vicious habits. 3. The drinking man, as soon as he begins his spree, before he is crazed by it, should be taken into custody, not as a mere nuisance, but as a dangerous man or one likely to become so, because of insanity in the incipient stage. 4. The confirmed drunkard, the chronic alcoholic subject, should on no account be allowed to exercise his personal liberty in the pursuit of delusions which result from prolonged excesses. The following papers were also read:

"Some Recently Collected Statistics on the Increasing Frequency of Abortion and Some Causes for the Same," by Dr. J. L. Andrews of Memphis; "Keratosis Follicularis," by Dr. G. P. Edwards, Nashville; "Bone Surgery," by Dr. R. A. Barr, Nashville; "The Physician as an Advertising Medium," by Dr. F. J. Runyan, Clarkesville; "Circumcision," by Dr. E. A. Timmons, Columbia, and "Appendicitis," by Dr. John A. Gaines, Nashville.

## *Therapeutics*

[*It is the aim of this department to aid the general practitioner by giving practical prescriptions and, in brief, metho of treatment for the diseases seen especially in every-day practice. Proper inquiries concerning general formulae and outlines of treatment are answered in these columns.*]

### Potassium Iodid.

#### BEST METHOD OF ADMINISTRATION.

Acting on the principle that the best method of administering a drug is by obtaining the results desired with the least possible undesirable effect, Hübner, in *Med. Record*, states that the best method of administering potassium iodid must differ with the different purposes in view. If given in cases which will require it for a long time, as in arteriosclerosis, it must be given differently than in cases which require rapid action as in gumma. General principles, in considering the different methods of administration, will apply to all of them.

1. For therapeutic purposes potassium iodid should always be given in solution, well diluted and, if possible, never on an empty stomach. For dilution milk is by far the best vehicle, as it not only disguises the taste, but also prevents disagreeable after-effects of the medicine. Syrup of sarsaparilla is another vehicle suggested; also the mineral waters or plain water.

2. The preparation must be pure potassium iodid, when pure can be taken for a very long period and in large doses without causing gastrointestinal disturbances, and many of the bad effects produced in the course of its administration are due to an impure preparation.

3. It is necessary to observe strict cleanliness of the skin by daily baths while taking the iodid internally. In this way the usual skin eruptions may be avoided, the eruption being due to the decomposition of the iodin salt excreted with the perspiration by the fatty acids, setting free the iodin, which acts as an irritant.

4. It is better to prescribe a 50 per cent. solution where two drops of the solution represent one grain of the salt rather than a 100 per cent. solution as the latter is not obtained when the druggist prepares it in the ordinary way, consequently the dosage is not so accurate.

5. It must be kept in mind that potassium iodid is incompatible with the alkaloids and soluble metallic salts such as calomel.

6. Small doses may produce symptoms of iodism while large doses in the same patient may not have this effect.

7. Potassium iodid should never be given in phthisis or even when there is a suspicion of phthisis. Its irritating effect on the bronchial mucous membrane makes it decidedly objectionable. If phthisis should be associated with syphilis it is of service.

### SYPHILIS.

Potassium iodid should never be given in the primary stage of syphilis. In the secondary stage it should not be administered until the patient has had at least six months of treatment by mercurial inunctions unless, as sometimes happens, some tertiary symptoms appear ahead of time and threaten some important organ as the brain or the eye. Occasionally it is necessary in such cases to begin the administration of potassium iodid at once.

In the ordinary cases the author begins the iodids with the following combination:

| | | | | |
|---|---|---|---|---|
| R. | Hydrarg. iodidi rubri | gr. ss | | 03 |
| | Potassii iodidi | gr. cxxviii | 8 | 60 |
| | Syr. sarsap. co | ℥i | 30 | |
| | Aquæ, q. s. ad | ℥ii | 60 | |

M. Sig.: One teaspoonful after meals three times a day, well diluted.

After a few weeks it is better to give the iodid alone by the mouth and to give the mercury by inunction at intervals for another six months, giving especial attention to the mouth, teeth, gastrointestinal tract and the skin. When so giving the iodid the author recommends the following combination as preferable to the drop method:

| | | | |
|---|---|---|---|
| R. | Potass. iodidi | ʒviii-ʒx | 30.-40 |
| | Syr. sarsap. co | ʒi | 30 |
| | Aquæ, q. s. ad | ℥iii | 90 |

M. Sig.: One teaspoonful in half a glass of water three times a day, after meals.

When giving potassium iodid for its specific effect it should be stopped when the symptoms of poisoning appear, and after a short interval it should be begun again with a smaller dose. In tertiary syphilis, especially when a vital organ is involved or threatened, the dose should be gradually increased regardless of rhinitis, pustulations, etc., because by increasing the dose the symptoms of poisoning may disappear, and it is essential that the system becomes saturated, increasing the dose at the rate of six drops a day (two drops at a dose).

### CEREBRAL SYPHILIS.

This form of syphilis is benefited only in the early stage by absorption of the gumma or swelling of the intima. If improvement does not take place after two months the iodin should be discontinued, as it may do harm. In all cases of cerebral or spinal cord tumors it should be given a trial, as it sometimes is of service in tumors of non-syphilitic origin.

### LATE VARIETIES OF SYPHILIS.

In some of the late varieties of syphilis Shoemaker recommends the following combinations containing potassium iodid:

| | | | |
|---|---|---|---|
| R. | Potassii iodidi | ʒv | 20 |
| | Tinct. cimicifugæ | ʒii | 8 |
| | Syr. sarsap. co | ℥v | 150 |

M. Sig.: Two teaspoonfuls in water three or four times daily. Or:

| | | | |
|---|---|---|---|
| R. | Sodii iodidi | ʒiiss | 10 |
| | Vini erythroxyli (N. F.) | ℥x | 300 |

M. Sig.: One tablespoonful three or four times daily. Or:

| | | | |
|---|---|---|---|
| R. | Ammon. iodidi | ʒv | 30 |
| | Tinct. nucis vom | ʒi | 4 |
| | Ext. rhamni purshiani flu | ℥i | 30 |
| | Glycerini | ℥iv | 120 |

M. Two teaspoonfuls in water three or four times a day.

In some cases the following is preferable:

| | | | | |
|---|---|---|---|---|
| R. | Hydrarg. iodidi rubri | gr. iii | | 20 |
| | Potassii iodidi | ℥i | 30 | |
| | Tinct. iodi | ʒi | 4 | |
| | Syr. ferri iodidi | ℥i | 30 | |
| | Aquæ | ℥iii | 90 | |

M. Sig.: One teaspoonful in water after meals.

In combination with the salicylates the iodids may prove valuable, according to some authors, in acute rheumatism, as follows:

| | | | |
|---|---|---|---|
| R. | Potass. iodidi | ʒiii | 12 |
| | Sodii salicylatis | ℥ss | 15 |
| | Spts. etheris nitrosi | ℥i | 30 |
| | Syr. aurantii | ℥iiss | 75 |

M. Sig.: One to two teaspoonfuls every two hours, well diluted in water.

If the stomach shows intolerance the iodid is recommended given in the form of an enema, as the bowel absorbs it very readily and about as rapidly as does the mucous membrane of the stomach. It may be given combined as follows:

| | | | | |
|---|---|---|---|---|
| R. | Potassii iodidi | gr. xlv | 3 | |
| | Potassii bromidi | gr. xv | 1 | |
| | Ext. belladonnæ | gr. v | | 30 |
| | Aquæ | ℥vii | 210 | |

M. Sig.: One and a half tablespoonfuls added to three ounces of water and given as an enema.

When there is a tendency to iodism the following is recommended by Lang:

| | | | | |
|---|---|---|---|---|
| R. | Potassii (sodii) iodidi | ʒiiss | 70 | |
| | Ext. belladonnæ | gr. iss-ii | | 09-.12 |
| | Aquæ fontanæ | ℥vi | 180 | |

M. Sig.: One to three teaspoonfuls daily in half a glass of water, milk or beer.

As a preparation which may be used subcutaneously he recommends the following:

| | | | | |
|---|---|---|---|---|
| R. | Potass. iodidi | gr. lxxv | 5 | |
| | Codeinæ | gr. 3/4 to iss | | 05-.09 |
| | Aquæ destil. | ʒiss | 6 | |

M. Sig.: Fifteen to forty-five drops to be injected subcutaneously once daily.

### TABES DORSALIS.

Although the iodids do not have the brilliant results in this condition which they have in other syphilitic lesions, Hubner says that potassium iodid should be given a trial, running the dose up to a hundred grains (6.65) a day.

### CHRONIC ENDARTERITIS.

Whether the endarteritis is syphilitic or not, potassium iodid should be given in doses of from five to twenty grains (.30 to 1.30) four times a day for a considerable length of time, omitting it at intervals for a short period.

### CHRONIC ENDOCARDITIS.

It matters not what valves are diseased if the arteries are contracted, potassium iodid is of value given in doses of from five to ten grains (.30 to .65) three times a day, kept up for a considerable period. It may be given in combination with digitalis, if the latter is indicated, to modify the action on the arteries. The only effect potassium iodid has on the heart is shown only when large doses are taken and then it is due to the potassium.

### ASTHMA.

If the asthmatic attacks are brought on by nasal polypi the iodid will only do harm by increasing the nasal congestion, and likewise when the attacks are due to swelling of the mucous membrane of the bronchi. If the attacks are due to simple spasm of the arterioles, good results are derived from its use. The author recommends, first, large doses of nitroglycerin, followed by potassium iodid in doses ranging from ten to twenty grains (.65 to 1.30) three times a day.

### CHRONIC BRONCHITIS.

If the bronchitis is secondary to chronic endocarditis or endarteritis, it is of value in doses of from five to ten grains (.30 to .65) each.

### LEAD POISONING.

In this condition the preparation must be given in small doses, grains five to ten (.30 to .65), for a long time, and must not be abandoned if the symptoms get worse, as this may be caused by the liberation of the lead and its circulation through the system, and likewise may produce cerebral symptoms. In anemic persons it is best combined with iron.

### RHEUMATISM.

The iodid is useless in acute articular and in muscular rheumatism, as a rule. In chronic rheumatism it is of value combined as follows:

| | | | |
|---|---|---|---|
| ℞. | Potassii iodidi. | | |
| | Sodii salicylatis. | | |
| | Vini colchici sem., āā | ʒii | 8 |
| | Aquæ, q. s. ad | ℥iv | 120 |

M. Sig.: One tablespoonful four times a day.

In administering potassium iodid to children the preparation may be given either to the mother or to the wet nurse, in the hope that it be excreted in the milk, but this is an unreliable method. In giving it directly to children, the symptoms of iodism are shown mainly through the gastrointestinal tract; children can stand larger doses proportionately, as a rule, than can adults. It should be given well diluted and preferably in small doses frequently given than in large doses infrequently given. In other words, it is better to give grain one-fourth (.015) every hour than one grain (.06) every four hours.

### Chronic Rheumatism.

The *Clinical Review* recommends the following in the treatment of chronic rheumatism:

| | | | |
|---|---|---|---|
| ℞. | Potass. iodidi | ʒi | 4 |
| | Sodii salicylatis | ʒii | 8 |
| | Colchicin. | | |
| | Strych. sulph., āā | gr. ss | 03 |

M. Ft. capsulæ No. 30. Sig.: One capsule three times a day.

In connection with the foregoing a teaspoonful of the following should be given as follows:

| | | | |
|---|---|---|---|
| ℞. | Sodii benzoatis. | | |
| | Sodii phosphatis, āā | ℥i | 30 |

M. Sig.: One teaspoonful in glass of hot water before breakfast.

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# *Medicolegal*

## Constitutionality of Compulsory Vaccination Law.

The Supreme Court of the United States says that the case of Jacobson vs. Massachusetts, as it is now entitled, was one where an adult, who, for aught that appeared, was in perfect health and a fit subject of vaccination, yet while remaining in the community refused to obey the Massachusettts statute empowering compulsory vaccination and a regulation adopted in execution of its provisions for the protection of the public health and the public safety, confessedly endangered by the presence of a dangerous disease. The court, however, now decides only that the statute covered this case, and that nothing clearly appeared that would justify the court in holding it to be unconstitutional and inoperative in its application to the defendant (Jacobson).

The court passes without extended discussion the suggestion that the particular section of the statute of Massachusetts in question was in derogation of rights secured by the preamble of the Constitution of the United States, because, although the preamble indicates the general purposes for which the people ordained and established the constitution, it has never been regarded as the source of any substantive power. The court also passes without discussion the suggestion that such section of the statute was opposed to the spirit of the constitution.

According to settled principles, the police power of a state, the court says, must be held to embrace, at least, such reasonable regulations established directly by legislative enactment as will protect the public health and the public safety. It is equally true that the state may invest local bodies called into existence for purposes of local administration with authority in some appropriate way to safeguard the public health and the public safety. On the principle of self-defense, of paramount necessity, a community has the right to protect itself against an epidemic of disease which threatens the safety of its members. Smallpox being prevalent and increasing at Cambridge, where the regulation in question was adopted, the court would usurp the functions of another branch of government if it adjudged, as matter of law, that the mode adopted under the sanction of the state, to protect the people at large was arbitrary, and not justified by the necessities of the case.

It was said, however, that the statute, as interpreted by the state court, although making an exception in favor of children certified by a registered physician to be unfit subjects for vaccination, made no exception in case of adults in like condition. But this could not be deemed a denial of the equal protection of the laws to adults; for the statute was applicable equally to all in like condition, and there were obviously reasons why regulations might be appropriate for adults which could not be safely applied to persons of tender years.

Certain offers of proof were made which in the main seemed to have had no purpose except to state the general theory of those of the medical profession who attach little or no value to vaccination as a means of preventing the spread of smallpox, or who think that vaccination causes other diseases of the body. But the court says that what everybody knows the court must know, and therefore the state court judicially knew, as this court knows, that an opposite theory accords with the common belief, and is maintained by high medical authority. It must be assumed that, when the statute in question was passed, the legislature of Massachusetts was not unaware of these opposing theories, and was compelled, of necessity, to choose between them. It was not compelled to commit a matter involving the public health and safety to the final decision of a court or jury. It was no part of the function of a court or a jury to determine which one of two modes was likely to be the most effective for the protection of the public against disease. That was for the legislative department to determine in the light of all the information it had or could obtain. It could not properly abdicate its function to guard the public health and safety.

Whatever may be thought of the expediency of this statute, it can not be affirmed to be, beyond question, in palpable conflict with the constitution. Nor, in view of the method employed to stamp out the disease of smallpox, can any one confidently assert that the means prescribed by the state to that end has no real or substantial relation to the protection of the public health and the public safety. Such an assertion would not be consistent with the experience of this and other countries whose authorities have dealt with the disease of smallpox. And the principle of vaccination as a means to prevent the spread of smallpox has been enforced in many states by statutes making the vaccination of children a condition of their right to enter or remain in public schools. Since, then, vaccination, as a means of protecting a community against smallpox, finds strong support in the experience of this and other countries, no court, much less a jury, is justified in disregarding the action of the legislature simply because in its or their opinion that particular method was—perhaps, or possibly—not the best either for children or adults.

The defendant offered, among other things, to prove that he refused to submit to vaccination for the reason that he had, "when a child," been caused great and extreme suffering for a long period by a disease produced by vaccination, though he did not offer to prove that, by reason of his then condition, he was in fact not a fit subject of vaccination at the time he was informed of the requirement of the regulation adopted by the board of health. The court says that it was entirely consistent with his offer of proof that, after reaching full age, he had become, so far as medical skill could discover, and when informed of the regulation of the board of health was, a fit subject of vaccination, and that the vaccine matter to be used in his case was such as any medical practitioner of good standing would regard as proper to be used. The matured opinions of medical men everywhere, and the experience of mankind, as all must know, negative the suggestion that it is not possible in any case to determine whether vaccination is safe.

Was the defendant exempted from the operation of the statute simply because of his dread of the same evil results experienced by him when a child. and which he had observed in the cases of his son and other children? Could he reasonably claim such an exemption because "quite often," or "occasionally," injury had resulted from vaccination, or because it was impossible, in the opinion of some, by any practical test, to determine with absolute certainty whether a particular person could be safely vaccinated? It seems to the court that an affirmative answer to these questions would practically strip the legislative department of its function to care for the public health and the public safety when endangered by epidemics of disease. Such an answer would mean that compulsory vaccination could not, in any conceivable case, be legally enforced in a community, even at the command of the legislature, however widespread the epidemic of smallpox, and however deep and universal was the belief of the community and of its medical advisers that a system of general vaccination was vital to the safety of all.

This court is not prepared to hold that a minority, residing or remaining in any city or town where smallpox is prevalent, and enjoying the general protection afforded by an organized local government, may thus defy the will of its constituted authorities, acting in good faith for all, under the legislative sanction of the state. If such be the privilege of a minority, then a like privilege would belong to each individual of the community, and the spectacle would be presented of the welfare and safety of an entire population being subordinated to the notions of a single individual who chooses to remain a part of that population. The court is unwilling to hold it to be an element in the liberty secured by the Constitution of the United States that one person, or a minority of persons, residing in any community and enjoying the benefits of its local government. should have the power thus to dominate the majority when supported in their action by the authority of the state.

In order, however, to prevent misapprehension as to its views, the court thinks it appropriate to observe that the police power of a state, whether exercised directly by the legislature, or by a local body acting under its authority, may be exerted in such circumstances, or by regulations so arbitrary and oppressive in particular cases, as to justify the interference of the courts to prevent wrong and oppression. Extreme cases can be readily suggested. Ordinarily such cases are not safe guides in the administration of the law. It is easy, for instance, to suppose the case of an adult who is embraced by the mere words of the act, but yet to subject whom to vaccination in a particular condition of his health or body would be cruel and inhuman in the last degree. The court is not to be understood as holding that the statute was intended to be applied to such a case, or, if it was so intended, that the judiciary would not be competent to interfere and protect the health and life of the individual concerned. But, until otherwise informed by the highest court of Massachusetts, this court is not inclined to hold that the Massachusetts statute establishes the absolute rule that an adult must be vaccinated if it be apparent or can be shown with reasonable certainty that he is not at the time a fit subject of vaccination, or that vaccination. by reason of his then condition. would seriously impair his health. or probably cause his death.

# *Current Medical Literature*

## AMERICAN.

Titles marked with an asterisk (*) are marked below.

### American Medicine, Philadelphia.

*April 22.*

1 *1. Transmanual Auscultation. 2. Ulnar Palpation. D. Riesman, Philadelphia.
2 The Destructive Skin Diseases: Epithelioma, Lupus, Vulgaris and Syphilis. H. W. Stelwagon, Philadelphia.
3 Cholecystitis. R. Lilienthal, New York.
4 Study of Homogenized Cultures of Tubercle Bacilli. R. C. Rosenberger, Philadelphia.
5 *Typhoid in Relation to the Urban and Rural Population of the United States. S. Egbert, Philadelphia.
6 *Cure by Operation of an Intractable Pronated Foot. W. Hoke, Atlanta.

**1. Transmanual Auscultation and Ulnar Palpation.**—Transmanual auscultation consists in auscultating through the hand placed on the precordia, and can be used satisfactorily only with one of the newer binaural stethoscopes. This method greatly facilitates the timing of a murmur inasmuch as the palpation and the auscultation are done at the same time and place. Almost equally good results can be obtained by placing the finger, flexed at a right angle, on the apex beat and then resting the stethoscope lightly on it. The principal advantage of transmanual auscultation will be found in distinguishing presystolic from systolic murmurs. The successful practice of the method presupposes the existence of a palpable heart-beat. The method may also be of value in timing peculiar murmurs having a wide area of diffusion. Ulnar palpation consists in laying the ulnar side of the hand in each interspace successively while the patient counts. The palpating surface must be placed firmly in the interspace, the hand being held almost at a right angle with the chest. It is advisable to stand a little to the side of the patient and to use the same hand for both sides of the chest. The method gives accurate information and enables one to discover small shades of difference in the fremitus of contiguous interspaces and of corresponding areas on the two sides. It has its best field in the diagnosis of effusions, especially in determining the upper level of the exudate. As a rule, it is practiced most successfully on the front of the chest. It is not offered as a substitute for the method of palpation now in use, but as an addition to it.

**5. Urban and Rural Typhoid.**—Egbert shows by reference to the United States Census Report of Vital Statistics for 1900 that typhoid is much more prevalent in the rural portions of the country than in cities. This is attributed to the unsanitary conditions prevalent in many towns and villages that, being under 8,000 in population, are too small to be classed with the urban, and which, therefore, make up a large part of the so-called rural population. The paper concludes as follows: 1. That although proper education in sanitary matters is essential and necessary throughout the whole country, it is especially important in so far as it relates to the causation and dissemination of typhoid in the localities indicated by the charts shown in connection with the paper. 2. That it is the duty of the medical profession in these particular localities not only to do all they can to educate the public along these lines, but also to impress their typhoid patients with the necessity of the utmost care as to disinfection, both during the illness and long after the convalescence. 3. That the medical practitioners should not only join hands with all progressive citizens, but should be the first to urge the improvement, purification and care of public water supplies, and should likewise use every reasonable means to induce those depending on private sources, whether in town or country, to protect themselves against the danger of infection. That it is likewise the duty of the members of the profession to help to secure for their respective localities and states uniform and satisfactory methods and laws governing the registration of vital statistics, not only because these are direct agents for the increase of sanitary information and knowledge, but because they also always react to bring about marked improvement in the sanitary conditions of the people supplying the statistical data.

**6. Intractable Pronated Foot.**—Hoke reports three cases in which the head of the astragalus was abducted and fixed in a pronated position by bone union at the astragulo-fibular articulation. After the astragalus had been released the usual methods of treatment resulted in a perfect anatomic and functional result. Hoke says that these cases are frequently overlooked, and emphasizes the necessity of carefully palpating the ankle in examining flat feet in order to determine whether the astragalus is fixed.

### Medical News, New York.

*April 22.*

6½ Alcohol as Food, R. H. Chittenden, New Haven, Conn.
7 Alcohol in Disease. G. L. Peabody, New York.
8 What the State of New York Is Doing for the Insane. F. Peterson, New York.
9 *Abdominal Nephrectomy, with Illustrative Cases. N. Jacobson, Syracuse, N. Y.

9. **Abdominal Nephrectomy.**—Attention is called by Jacobson to the surgical conditions which not only demand the removal of the kidney, but in which existing manifestations indicate that the preferable route for its removal is through the abdomen. Two conditions are encountered which can be more easily and more safely met by the abdominal operation. The first depends on the size of the mass, which may be so great that it can be removed through the back only with great difficulty. The second consideration is the presence of extensive adhesions which can not be freed satisfactorily through the lumbar incision. Therein lies the great advantage of the abdominal route. If the surgeon is able to see what he is doing, is work is greatly simplified and done with greater safety nd dispatch. The establishment of drainage through the oin Jacobson looks on as an essential feature of abdominal nephrectomy. He does not recommend the abdominal operation in preference to the lumbar in all nor in the greater number of cases requiring nephrectomy. When the tumor is of great size, when it is placed well down in the pelvis, when it is fixed by adhesions, when, in a word, it is necessary to have an abundance of room in order to expose the field of operation for the reasons mentioned, the abdominal route is less dangerous than the lumbar. Four cases are cited: a hydronephrosis due to abnormal origin of the ureter, with nephrolithiasis; a hydronephrosis due to calculous obstruction and subsequent traumatism; an enormous hydronephrosis due to acute insertion of the ureter, and a tuberculosis of the kidney with extensive suppuration and destruction of the organ.

### Medical Record, New York.

*April 22.*

10 Visual Function the Cause of Slanted Handwriting; Its Relation to School Hygiene, School Desks, Malposture, Spinal Curvature and Myopia. G. M. Gould, Philadelphia.
11 Simple Ulcer of the Stomach and Its Surgical Treatment. J. J. McGrath, New York.
12 Erysipelas with an Excessive Production of Fibrin. R. Floyd, New York.
13 Acute Posterior Periurethral Abscess. F. C. Walsh, Washington, D. C.

### New York Medical Journal.

*April 22.*

14 Value of the Radiograph in Diagnosis. S. Tousey, New York.
15 Hematoma of the Vulva and the Vagina. I. L. Hill, New York.
16 Symptomatology and Diagnosis of Atypical Forms of Pneumonia. J. C. Wilson, Philadelphia.
17 Nasal Obstruction as a Cause of Disorders of Nutrition. P. Fridenberg, New York.
18 Malnutrition in Young Children. T. W. Kilmer, New York.
19 Inflammation of the Glands of Bartholin. C. C. Miller, Chicago.
20 *Method of Measuring the *X*-Rays. M. Franklin, New York.
21 Review of the Treatment of Inflammatory Conditions of the Throat by Irrigation and Description of a New Irrigator Tip. E. L. Kellogg, New York.

20. **Method of Measuring X-Rays.**—Franklin proposes a method which is based on the power of the *x*-rays to ionize the gases through which they travel. The method, excepting for necessary modifications, to make it conform with the special requirements of the *x*-rays, is substantially analogous to that now commonly employed to measure the radioactivity of the radioactive substances. Air is rendered a conductor of electricity by the ionizing agent, and measurement of the amount of current flowing through it under given conditions gives an absolute index of the activity of the radiation. The instrument used, the electroscope, is charged by having brought into contact with the knob a rod of vulcanite which has been electrified by friction. The knob is brought into communication with a filament while the vulcanite is in contact and is released as soon as the filament has assumed a horizontal position. The electroscope is brought to the same distance from the tube as the patient or plate (in any position) and while the tube is running the shutter is open, and the time in seconds occupied by the filament in transit is noted. The number of seconds is the exact coefficient of energy of the rays, and when compared with any other reading made, under any circumstances whatever, with a similar instrument, the ratio of energy of the two radiations will equal that of the two times. The apparatus used is described in detail.

### The Boston Medical and Surgical Journal.

*April 20.*

22 *Method of Producing Ether Narcosis by Rectum. J. H. Cunningham, Jr., and F. H. Lahey, Boston.
23 *Serum Treatment in Multiple Infectious Arthritis. E. G. Brackett, Boston.
24 *Communicability of Cerebrospinal Meningitis. E. M. Buckingham, Boston.

22. **Ether Narcosis by Rectum.**—Experience has shown, say Cunningham and Lahey, that with this method of producing narcosis with ether, the patient passes under the influence of the drug rapidly and with no sense of suffocation; that less ether is used, not only in producing the narcosis, but also in maintaining it; that the stage of excitement is lessened or absent; that the ether recovery is more rapid, and that the disagreeable after-effects of inhalation ether narcosis are diminished or absent. It is also noteworthy that alcoholics pass through the stage of excitement with little if any resistance or struggling. Although the greater part of the ether is eliminated through the lungs, the direct irritation of the concentrated vapor is overcome and postoperative pneumonia should be lessened. A free and continuous access to the field of operation is a great advantage to the surgeon. In operations on the head, face, mouth, nose, throat, ear, eye and neck, the absence of the ether cone not only lessens the technical difficulties of the operation, but also minimizes the chances of sepsis and lessens considerably the time necessary to perform the operation. To overcome irritation of the rectum the authors use a specially devised apparatus for producing narcosis. To obtain the best results it is essential that the bowels should be thoroughly cleaned out. The authors report 41 cases, 17 of which received ether by mouth preliminary to the rectal method and 24 cases which were started by rectum. Among this series were cases of fracture of the skull, tubercular glands of the neck, carcinoma of the upper lip, skin graft, plastic operations on the face, adenoids, amputation, circumcision, osteotomy, etc. The apparatus used and the method of administration are described in detail.

23. **Serum Treatment in Multiple Infectious Arthritis.**—Brackett reports on the use of antistreptococcus serum in the treatment of 4 cases of multiple infectious arthritis. In 2 the acute stage was shortened very markedly; in 1 other, which was more extensive and subject to frequent and persistent exacerbations, the acute attacks were done away with and the general condition was very much improved. In the fourth the injections were given in the quiescent stage and with no result. In these cases, the greater the reaction from the injection, the more rapid and more decided the improvement. It would seem that the time of election for the trial of such measures is the acute stage, when there is a marked sensitiveness, pain and progression of the disease, given only with the idea of cutting short this stage, so that the greater resulting deformity and stiffness be lessened, allowing the later treatment to be begun at an earlier period. It in no way does away with the work to be accomplished after the acute stage is over. The amount of serum used in these cases varied from 1 to 10 c.c. The upper part of the back or the side of the thorax was chosen for the site of the injection.

24. **Communicability of Cerebrospinal Meningitis.**—Buckingham attempts to show that living in the same room and breathing the same air with patients ill with cerebrospinal meningitis is not of itself dangerous; that some other way of transmission must be sought.

### St. Louis Medical Review, St. Louis, Mo.

*April 22.*

25 Gonorrheal Rheumatism. G. F. Lydston, Chicago.
26 The Etiology of Nervous Affections. T. H. Evans, Philadelphia.

### Lancet-Clinic, Cincinnati.

*April 22.*

27 Traumatic Tetanus. R. Carothers, Cincinnati.

28 Ectopic Pregnancy. F. F. Lawrence, Columbus, Ohio.
29 Etiology of Ectopic Gestation. H. B. McCall, Kansas City, Mo.
30 Use of a Normal Saline Solution in Surgery. L. G. Bowers, Richmond, Ind.
31 Two Mastoid Cases; Death from Cerebral Complications. L. R. Culbertson, Zanesville, Ohio.

### Archives of Ophthalmology, New Rochelle, N. Y.

*March.*

32 *Use of Paraffin Spheres in Frost's Operation (Modified Mules'). C. M. Spratt, Minneapolis.
33 Case of Probable Rupture of the Optic Nerve. W. N. Sharp, Indianapolis.
34 Congenital Deficiency of Abduction Associated with Impairment of Adduction, Retraction Movements, Contraction of the Palpebral Fissure and Oblique Movements of the Eye. A. Duane, New York.
35 *Studies in Light Sense. P. J. Hay, Birmingham, England.
36 Thrombosis of the Central Vein of the Retina in Chlorosis. T. Ballaban, Lemberg.

32. **Paraffin Spheres in Frost's Operation.**—For the purpose of obtaining a permanent movable stump on which to wear an artificial eye, Spratt has been inserting paraffin globes in Tenon's capsule in 23 cases. Among these there was but one failure. The causes for enucleating were as follows: Injuries, 8; disorganized globe, 8; staphyloma, 2; glaucoma, 2, and kerato-iritis, 3. The spheres are prepared as follows: Paraffin with a melting point of about 60 C. is melted and filtered through ordinary filter paper into clean test tubes. These are stopped with cotton and placed in a steam sterilizer. When they have become cool and the paraffin is solid, the glass is heated in hot water or over a flame until the layer of wax next to the glass is liquid. The central solid paraffin rod is readily removed and placed in a warm solution of bichlorid. With a knife, this long, candle-like piece of wax is divided into suitable sized pieces, and while yet warm is rolled into spheres. These spheres are kept for future use in a wide-mouthed bottle containing a 5 per cent. solution of formalin. The most convenient-sized sphere is one 17 mm. in diameter. Spratt believes that the insertion of a paraffin sphere in Tenon's capsule is the operation of choice in all cases requiring the removal of an eye, except when a malignant growth involves the orbital tissue or when panophthalmitis is present. In the former case exenteration of the orbit, in the latter condition evisceration with good drainage of the scleral cavity, are the operations preferred. The modified Mule's or Frost operation combines the cosmetic results of Mule's with the advantages of simple enucleation. These are: 1. Good cosmetic results; good motion of the artificial eye; no recession of the eye; contact with the lids. 2. Secretions will not accumulate in the hollow behind the eye, as this is occupied by the stump. 3. No danger of overlooking malignant intraocular tumors. 4. Best prophylaxis against sympathetic ophthalmia. Paraffin is the most suitable material for the prothesis because it is non-irritating and least likely to be extruded; the spheres can be easily made and are inexpensive; there is no danger of their being broken, and the paraffin adapts itself to the shape of the cavity, is soon surrounded by fibrous capsule, and is firmly held in place by connective tissue growths.

35. **Studies in Light Sense.**—Hay has devised a new photometer and summarizes the results obtained from its use as follows: Refractive errors, if low, do not affect the light sense; if high, they tend to increase the light difference. Vitreous opacities increase both the light minimum and the light difference. Choroiditis, other than syphilitic and disseminated choroiditis, affects both the light minimum and the light difference. The light minimum is generally more affected than the light difference, but not invariably so. The implication of the light sense seems to vary in extent according to the position of the lesion. It appears to be more impaired if the lesion is close to the macula. Glaucoma chiefly increases the light difference, and this may be one of the earliest signs of the disease. Optic atrophy generally affects the light difference, but there are cases in which the light minimum is very much increased. Retinitis increases both the light minimum and the light difference. Affections involving the internal layers of the retina more than the external ones do not seem to affect the light sense as much as those situated in the external layers.

### Illinois Medical Journal, Springfield.

*April.*

37 *Clinical Experiences with Sauerbruch's Operative Cabinet. D. B. Hahn, Breslau, Germany.
38 Something About Urethritis. H. Crutcher, Chicago.
39 *Attempt to Use the Electric Conductivity of Urine for Clinical Purposes. G. Kolischer and L. E. Schmidt, Chicago.
40 Tricuspid Obstruction Associated with Mitral and Aortic Lesions. J. M. Patton, Chicago.
41 Gastroenterostomy. A. H. Ferguson, Chicago.

37. **Sauerbruch's Cabinet.**—Hahn describes the incidents leading to the invention of this cabinet, which was first suggested by Mikulicz for the purpose of avoiding pneumothorax during intrathoracic operations. A cabinet constructed according to Sauerbruch's plans has been used by Mikulicz on several occasions with a fair degree of success. The heart, esophagus and chest wall have been operated on successfully by various operators. For a description of the cabinet see THE JOURNAL of Nov. 5, 1904, p. 1424.

39. **Electric Conductivity of Urine.**—Taking as a starting point the idea that the vitality and normal and abnormal status of any tissue can be tested by observing its reactions to certain interferences brought to bear on it, and that certain stains brought into the circulation will appear at different times and with different intensity in the urine, Kolischer and Schmidt investigated whether or not the secreting efficiency of normal and abnormal kidneys might be influenced in a way peculiar and characteristic for normal and abnormal conditions of secreting tissue. As the most sensitive test they resorted to the test of electric conductivity, and as a method of staining they selected hypodermic injections of indigo carmine. They found that any increase after staining of electric conductivity beyond 10 international ohms is characteristic of impaired health of the kidney. If this increase stays inside the limit of 20 ohms the kidney still may be considered as safe in a surgical sense; that is, it can reasonably be expected to be of sufficient functional capacity to attend to the eliminating process after its mate is removed. The authors feel that they will be able to determine whether a given individual will react as to his kidneys favorably or unfavorably to the administration of a general anesthetic.

### Laryngoscope, St. Louis.

*March.*

42 History of the Laryngoscope. S. Thomson.
43 Observations on the Human Voice. M. Garcia.
44 Pioneers of Laryngology. F. C. Ewing.
45 *Chronic Laryngitis. E. F. Ingals, Chicago.
46 *Laryngo-Tracheal Injections. T. Hubbard, Toledo.

45. **Chronic Laryngitis.**—Ingals says that from 80 to 90 per cent. of his cases of catarrhal laryngitis result from nasal obstruction or, at least, are kept up by that condition. In these the nasal trouble must be removed in order to cure the larynx.

46. **Laryngo-Tracheal Injections.**—Hubbard says that in ordinary bronchial affections properly administered tracheal injections take the place of so-called stimulating expectorants, and during the period of convalescence from acute bronchitis the recuperative power of the patient is decidedly fortified and nutrition is favored by relieving the gastrointestinal tract from the disturbing influence of cough sedatives and expectorants in syrups *ad nauseam.*

### Chicago Medical Recorder.

*April 15.*

47 Two Cases of Complete Perineal Prostatectomy by Young's Technic. J. Frank, Chicago.
48 *Infiltration Anesthesia in General Surgery. R. M. Parker, Chicago.
49 Treatment of Chronic Obstructive Rhinitis. G. P. Head, Chicago.
50 Infant Mortality. W. J. Butler, Chicago.
51 Insurance for the Working Man. D. Lewis, Chicago.
52 Criminal Abortion from the Coroner's View Point. J. E. Traeger, Chicago.

48. **Infiltration Anesthesia in General Surgery.**—The solution which Parker has found most satisfactory for general use is the following:

| | | | |
|---|---|---|---|
| ℞. | Cocain hydrochlorate | gr. iiss | 1 |
| | Sodium chlorid | gr. x | 6 |
| | Suprarenal ext. (1-1,000) | gr. lxxv-ʒiiss | 5-10 |
| | Aquæ dest. q. s. ad | | 100 |

Sixty c.c. of this solution will suffice for the large majority of operations, although the entire 100 c.c. can be used safely at one sitting. Parker has employed infiltration anesthesia to relieve his patients of the small amount of pain in those slight operations which are usually done without any anesthetic, such as aspiration of the chest, tapping of an ascites, vaccination.

He has used the method about twenty-five times for the latter purpose and has found it very satisfactory. The absolute contraindications to infiltration anesthesia are: 1. Insurmountable fear on the part of the patient. 2. Where muscular relaxation is required. 3. In plastic operations where infiltration would destroy relations.

### Denver Medical Times.

*April.*

53 Neurasthenia in Pulmonary Tuberculosis. J. E. Courtney, Denver.
54 *General Septic Peritonitis. I. B. Perkins, Denver.
55 Normal Obstetrics, the Physiology of Labor. T. M. Burns, Denver.

54. **General Septic Peritonitis.**—Perkins urges an early diagnosis and immediate operation. Free flushing of the abdominal cavity with removal of all poison possible is of the greatest importance when the infection is general. An elevated position, draining the contents of the abdomen into the pelvis, the point of greatest resistance, is of great benefit. In profoundly septic cases in which general infection is present adhesions form slowly, allowing frequent subsequent flushing of the abdominal cavity with hot salt solution, which does no harm and aids materially by removing large quantities of toxic material from the abdomen. The subcutaneous or intravenous dose of salt solution is valuable in that it dilutes the poison, lessens the toxemia and stimulates the kidneys to free action. Free catharsis should be obtained at the earliest possible moment, and should be kept up during the entire convalescent period, thereby aiding in the elimination of much septic material which has been cast into the bowel and which would be reabsorbed if left alone. Furthermore, troublesome adhesions are less liable to form if the bowel is kept active. The use of some cathartic salt in the water used for washing out the stomach aids materially in establishing peristalsis.

### The Therapeutic Gazette, Detroit, Mich.

*April 15.*

56 *Antitoxin Treatment of Diphtheria, with a Plea for Rational Dosage in Treatment and in Immunizing. B. F. Royer, Philadelphia.
57 Treatment of Sciatic Neuritis. C. Pope, Louisville.
58 Malarial Hemoglobinuria, or Hemorrhagic Malarial Fever. W. E. Sparkman, Georgetown, S. C.
59 *Treatment of Yellow Fever. A. M. Fernandez de Ybarra, New York City.

56.—See abstract in The Journal of February 18, p. 568.

59. **Treatment of Yellow Fever.**—The great desideratum in the treatment of yellow fever, says de Ybarra, is not to disturb the stomach and to relieve the congestion of the kidneys. The hot mustard foot-bath relieves cerebral congestion and headache and often induces free perspiration followed by sleep. Applications of ice or of cold water to the head, face, hands or back during the febrile stage are dangerous, because they produce a sudden cooling of the body surface and increase the existing congestion of the viscera. Sinapisms over the epigastrium relieve pain in the stomach as well as visceral congestion. Diaphoresis and diuresis should be promoted by means of large draughts of lemonade made with seltzer water, hot decoctions of orange leaves, Vichy or soda water, or by rectal injection of fresh water. Opium, in whatever form, should never be given. Neither are stimulants indicated, except in some cases in which the patient has been in the habit of using them. Iced champagne is best. When the pulsations of the heart fall to 50 or 60 a minute digitalis should be given. Proper alimentation is of prime importance. During the onset of the attack no food should be given, and until convalescence is fully and completely established no solid food should be given to the patient. Absolute rest in bed in a ventilated room without draughts of air, of even temperature, is very important to the successful treatment of yellow fever. More essential than that is a calm and hopeful state of the mind and spirit of the patient.

### Colorado Medicine, Denver.

*April.*

60 The X-Ray in the Diagnosis of Bone and Joint Injuries and Diseases. S. B. Childs, Denver.
61 *Indications for Nephropexy. J. N. Hall, Denver.
62 Unique Case of Traumatic Hernia. R. W. Corwin, Pueblo.
63 Operative Treatment of So-Called Medical Diseases. J. G. Sheldon, Telluride.
64 Puerperal Sepsis. A. F. Hutchinson, Durango.
65 Genius and Insanity. H. T. Pershing, Denver.

61. **Indications for Nephropexy.**—According to Hall, the majority of cases of movable kidney demand no operation. The degree of mobility should influence the surgeon's judgment but little as to the advisability of operation, for marked symptoms exist with but little displacement oftentimes, and vice versa. Cases in which no symptoms exist are distinctly non-operable. The same is true of the movable kidney often seen in wasting diseases, notably in tuberculosis, and in the old and feeble. Operation is distinctly indicated in cases presenting symptoms of indigestion, loss of weight, debility, and albumin and casts in the urine; cases in which following a fall or other injury, symptoms attributable to a floating kidney immediately supervened; the occurrence of Dietl's crises; floating kidney associated with chronic appendicitis; cases in which the symptoms are chiefly those of nervousness, debility and lack of ability to stand work, without marked neurasthenia, aching pain in the kidney region, always worse after exercise; intermittent hydronephrosis and cases in which various nerve pains exist from pressure on the genitocrural nerve.

### Bulletin of the Johns Hopkins Hospital, Baltimore.

*April.*

66 Surgery of the Posterior Mediastinum; Its Past and Future. J. D. Fauer, Paris.
67 Aplastic Anemia Associated with Lymphoid Hyperplasia of the Bone Marrow. G. Blumer, San Francisco.
68 Preliminary Communication Regarding an Immune Body Capable of Inhibiting the Development of Cancer in Mice (Adeno-Carcinoma, Jensen). G. H. A. Clowes.
69 Multiplex Slide-Holding Device. E. F. Miller.
70 Dr. Heinrich or Henry Keerl of Baltimore, The "Hessian Surgeon." E. F. Gordell.
71 Bacillus Aerogenus Capsulatus in Puerperal Infection. H. M. Little, Baltimore.

### The Physician and Surgeon, Detroit and Ann Arbor.

*March.*

72 Tribute to Albert B. Prescott. V. C. Vaughan, M. L. D'Ooge and E. D. Campbell.
73 Crime and Criminals, and What Shall be Done with the Latter. H. Hatch, Quincy, Ill.

### The Archives of Physiological Therapy, Boston.

*March.*

74 Radioactivity. A. D. Rockwell, New York City.
75 Cataphoric Diffusion of Metallic Ions in the Destructive Sterilization of Cancer and Tuberculous Deposit. G. B. Massey, Philadelphia.
76 Roentgen Ray Diagnosis of Calculi. R. H. Boggs, Pittsburg.
77 Radium in Surgery. J. Rudis-Jicinsky, Cedar Rapids, Iowa.
78 *X*-Ray in Tubercular Adenitis. M. C. Rice, Chicago.

### Southern Medicine and Surgery, Chattanooga, Tenn.

*April.*

79 Treatment of Placenta Previa. J. B. De Lee, Chicago.
80 Movable Kidney: Its Causes, Symptoms and Diagnosis. B. L. Hillsman, Richmond, Va.
81 Tuberculous Meningitis. S. D. Acuff, Knoxville.
82 Treatment of Dysentery. W. F. Waugh, Chicago.

### Old Dominion Journal, Richmond, Va.

*April.*

83 Operations on the Gasserian Ganglion. J. S. Horsley, Richmond.
84 Hemorrhages at Confinement. C. Roberson, Greensboro.
85 Comments on the So-Called Radical Operation for Long-Standing Purulent Otorrhea. J. Dunn, Richmond.

### Southern California Practitioner, Los Angeles.

*April.*

86 Los Angeles Versus Eastern Climate. D. W. Edelman, Los Angeles.
87 Mountain Climbing. W. Rodman, Los Angeles.
88 Los Angeles Medical History. G. MacGowan, Los Angeles.
89 Uncinaria Duodenalis, or Hookworm Disease. D. S. McCarthy, Los Angeles.
90 Uncinaria Duodenalis (Hookworm Disease). Its Presence in Porto Rico and Treatment Suggested. L. L. Seaman.

### Columbus Medical Journal.

*April.*

91 Recent Views as to Etiology of Diabetes. J. H. J. Upham, Columbus.
92 Medical Study and Care of Inebriety. T. D. Crothers, Hartford.
93 Endometritis. E. G. Lupton, Gallipolis.
94 Review of 1,000 Operations for Gallstone Disease, with Especial Reference to the Mortality. W. J. and C. H. Mayo, Rochester, Minn.

### Virginia Medical Semi-Monthly, Richmond.

*April 7.*

95 Contribution to Study of Dislocations of First Carpometacarpal Joint. D. P. Hickling, Washington, D. C.
96 Pain as Symptom in Urinary Diseases. C. G. Cumston, Boston.
97 Cocain in Surgery; with Special Reference to Its Use in Operations for the Cure of Hernia. J. S. Horsley, Richmond.
98 Treatment in Influenza. W. F. Waugh, Chicago.
99 Observations in Typhoid; with a Report of 153 Cases. H. G. Nicholson, Charleston.

100 Ectopic Gestation Twice in the Same Patient within Eleven Months H A Royster, Raleigh, N. C.
101 X Ray Burns L R McCready, Grand Rapids, Mich

### Northwestern Lancet, Minneapolis.

*April 15*

102 Etiology, Diagnosis and Treatment of Acute Inflammations of the Anterior Group of the Nasal Accessory Sinuses W. R Murray, Minneapolis

### Medical Fortnightly, St. Louis.

*April 10.*

103 Interesting and Unusual Complications in Typhoid W. Lloyd, Philadelphia
104 Biliary Obstruction as a Cause of Nephritis M. F. Porter, Ft. Wayne.
105 Nature and Treatment of Nosebleed J H. Morris, Philadelphia
106 Relation of Man to Nature (a Study Prompted by "Testimonials of the Sepulchres"). A A Ashmead, New York.

### St. Paul Medical Journal.

*April*

107 Complete Excision of the Bladder for Carcinoma A. Schwyzer, St. Paul
108 Use of Creosote in Treatment of Pulmonary Tuberculosis H. L Taylor, St Paul.
109 Intermittent Gastric Hypersecretion J. S Gilfillan, St Paul
110 Chronic Adherent Pericarditis (a Study of 55 Cases) G D Head, Minneapolis
111 Trained Nurse W. Courtney, Brainerd, Minn

### American Practitioner and News, Louisville, Ky.

*April*

112 Acute Abdominal Disturbances Are They Ever Functional and Temporary, or Are They Always Organic and Inflammatory? E Marshall
113 Albuminuria: Its Significance and Detection W A Jenkins, Louisville
114 Hygiene of Tuberculosis M F Coomes
115 Phimosis in Infancy and Childhood C G Russman
116 Diseases of the Bronchi M S Allen

### Kansas City Medical Index-Lancet.

*April*

117 Nervous Diseases of Children and Their Relation to School Life and Work J Punton, Kansas City
118 Retention of Urine in the Male, Its Causes, Diagnosis and Treatment H. E Pearse
119 Vaginal Celiotomy or Anterior Colpotomy H C Crowell, Kansas City

### The Journal of Nervous and Mental Disease, New York.

*April*

120 Bilateral Cervical Sympathectomy for the Relief of Epilepsy, with Report of Three Cases Notes on the Physiologic Effects of Cutting the Sympathetic, and on the Histologic Changes Found in the Cases in Question W. P. Spratling, Sonyea N Y, and R Park Buffalo, N Y
121 Myelomalacia, with Especial Reference to Diagnosis and Treatment F W Langdon, Cincinnati
122 Traumatic Epilepsy in Its Medicolegal Relations A C Brush, New York City.

### Bulletin of the American Academy of Medicine, Easton, Pa.

*April.*

123 How May the Public Schools Be Helpful in the Prevention [illegible] A Knopf, New York
124 [illegible] Medical Inspection in the Public [illegible] Jackson, Denver.

### The Post-Graduate, New York City.

*April.*

125 Memoranda Relating to the Discovery of Surgical Anesthesia, and Dr William T G Morton's Relation to this Event W J Morton, New York
126 Etiology and Constitutional Treatment of "Bright's Disease" W H Foster, New York
127 Interesting Case of Adherent Intestine Cured by Operation L Weber.
128 Syphilis of the Liver with Perihepatitis H A Houghton, Bayside, L I.
129 Two Cases of Recovery from Toxic Amblyopia D B St John Roosa.
130 One Case of Primary Carcinoma of the Jejunum R H Halsey and E W. Peterson

### The Canada Lancet, Toronto, Canada.

*April.*

131 Forty Years and After—A Reply to Dr Osler J. Ferguson Toronto
132 Maternity Packet. A G A. Fletcher.
133 Canadian Society for the Prevention of Tuberculosis E J Barrick, Toronto

### Kentucky Medical Journal, Louisville.

*April.*

134 Dental Advice to the General Practitioner. H B Ray, Tompkinsville
135 Watching the Pendulum, or the Ups and Downs of Medicines and Measures Since My Short Acquaintance with Medicine E. B. Willingham, Cunningham.
136 Aneurismal Varix of Left Subclavian J. D. Trawick, Louisville
137 Country Obstetrician W. R. Burr, Auburn.
138 Tubercular Meningitis G P. Sprague, Lexington
139 Hydrophobia A S Brady, Greenup
140 Experience of a Doctor in the Kentucky Mountains W G Bailey, Millersburg

### Texas Medical Journal, Austin.

*April.*

141 The Care of the Insane in Texas. M. L Graves

### Oklahoma Medical News-Journal, Oklahoma City.

*April.*

142 Downfall of the General Practitioner. M M. Lively, Blackwell.

### Northwest Medicine, Seattle, Wash.

*April.*

143 Intestinal Intussusception W. S. Durand, Everett.
144 Pancreatic Inflammations in Their Relationship to Cholelithiasis and Their Treatment. (Continued.) A. W. M. Robinson, London.
145 Acute Leptomeningitis J W. Bailey, Seattle.

### St. Louis Courier of Medicine.

*April.*

146 Fallacies, Aims and Methods of Hydrotherapy in Fevers. S. Baruch, New York City.
147 Case of Chronic Seminal Vesiculitis; Removal of the Vesicles; Recovery. B. Lewis, St. Louis.
148 Baby Incubators on the "Pike." (Continued) J. Zahorsky, St Louis

### Alabama Medical Journal, Birmingham.

*April.*

149 Conservative Surgery of the Female Pelvic Organs W. M. Jordan, [illegible]
150 Tuberculosis [illegible] Briggs, Dallas, Texas.
151 Importance [illegible] which Leads to Higher Medical Education H A Grant, Jackson, Miss

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## FOREIGN.

Titles marked with an asterisk (*) are abstracted below. Clinical lectures, single case reports and trials of new drugs and artificial foods are omitted unless of exceptional general interest.

### British Medical Journal, London.

*April 8.*

1 *Surgical Treatment of Ulcer of the Stomach and of Its Complications B. G A. Moynihan.
2 Cases Illustrating Alternative Operations for Intestinal Obstruction A E Barker.
3 *Removal of Gall Bladder in a Woman Aged 75. A W. Addinsell, London.
4 New Methods of Studying Affections of the Heart J. Mackenzie, Burnley.
5 Obliterative Arteritis, Leading to Gangrene of Extremities in Otherwise Apparently Healthy Men in the Prime of Life. E. Michels and F P. Weber.
6 *Incidence and Effect of Some Diseases on Others J. R. Charles
7 National Importance of the Thorough and Systematic Removal of Adenoids in Childhood G C. Wilkin, London.
8 Fatal Case of Acute Mercurial Poisoning E S Sugden
9 Case of Acute Strychnin Poisoning in a Child; Recovery. J R. Pooler.
10 Correct Anatomic Form of Bicycle Pedals R A. Lundie.

1. **Surgical Treatment of Gastric Ulcer.**—Since 1897 Moynihan has had under his care 22 cases of perforating ulcer of the stomach or duodenum. There were 14 recoveries (63.6 per cent.) and 8 deaths (36.4 per cent.). There were 7 cases in which a duodenal ulcer perforated and 15 in which a gastric ulcer perforated. In the first 10 cases there were 6 deaths; in the last 12 cases there were 2 deaths. He has operated on 22 patients for the purpose of arresting hemorrhage, which, so far as could be judged, was likely soon to prove fatal. Three patients died; 19 recovered. Excision of the ulcer alone was performed in 1 case, the patient dying suddenly on the eighth day, when apparently doing well. Excision of the ulcer, followed by gastroenterostomy, was performed in 3 cases; 2 patients recovered and 1 died. In the remaining 18 cases gastroenterostomy *alone* was performed; 17 patients recovered and 1 died. For chronic ulcer of the stomach or duodenum, or both, *excluding* the cases of acute hemorrhage and of perforation just mentioned, Moynihan performed gastroenterostomy in 153 cases, with 2 deaths. In 1 case gastroplication was performed and later a gastroenterostomy which gave the patient complete relief. In 3 cases pyloroplasty was performed; in 2 of these gastroenterostomy has since been necessary. In 2 cases Finney's operation was performed; both patients recovered. Secondary operations were necessary in 2 cases; in 1 on account of regurgitant vomiting, an enteroanastomosis being performed; in the other vomiting began a few weeks after operation and persisted. This was found to be due to a small hernia through the opening in the mesocolon into the lesser sac. Regurgitant vomiting may be prevented by making the anastomosis as high as possible in the jejunum, and hernia may be prevented by suturing the margins of the opening in the mesocolon to the jejunum near the line of stitches between it and the stomach. Moynihan has

also operated on 20 cases of hour-glass stomach due to simple disease, with 3 deaths. The operations performed were as follows: Gastroplasty in 7, gastroenterostomy in 6, gastroplasty and gastroenterostomy in 2, gastrogastrostomy in 1, gastrogastrostomy and gastroenterostomy in 3, dilatation of stenosis in 1.

3. **Removal of Gall Bladder.**—Addinsell removed the gall bladder from a woman aged 75 because of repeated attacks of jaundice due to gallstones. The neck of the cystic duct was placed in the lower angle of the peritoneal wound. The peritoneum was then closed and the fascia and muscles sewn around the orifice of the duct, but the skin was not attached to the stump. The dressing was changed daily for a week, and several ounces of normal saline solution were injected into the duct daily for seven days. In a month the wound was healed. Two years after operation the patient had improved in general health, had no pain or jaundice and was stronger than she had been for years past.

6. **Incidence of Diseases.**—For the purpose of studying the incidence and effect of some diseases on others, Charles studied the postmortem records of 488 subjects of chronic disease. Of this number 156 patients died with the interstitial form of chronic nephritis. Of these 52 succumbed to the results of secondary infections, which included 31 cases of lobar pneumonia, 3 of bronchopneumonia, 6 of pericarditis, 1 of pulmonary gangrene, 1 of pleurisy, 4 of empyema, 4 of phthisis and 2 of general miliary tuberculosis. Of 37 cases of chronic mixed nephritis 35.8 per cent. of the patients died from secondary infections, consisting of 6 of lobar pneumonia, 2 of pericarditis, 1 of pyemia and 4 of phthisis; while of 22 cases of chronic parenchymatous nephritis 31.8 per cent. of the patients died from secondary infections, including 3 from lobar pneumonia, 1 from bronchopneumonia, 2 from pericarditis and 1 from peritonitis. With the exception of congenital heart disease, cirrhosis of the liver is the worst predisposing factor for secondary infections. Of 45 cases 44 per cent. of the patients succumbed to a secondary infection, namely, 7 from lobar pneumonia, 3 from bronchopneumonia, 1 from empyema, 1 from pyemia, 2 from tuberculous peritonitis, 4 from phthisis and 2 from general miliary tuberculosis. Cirrhosis of the liver was associated with cirrhotic kidneys in 17 cases. Of the cases which might be classed as primary arteriosclerosis 19 per cent. of the patients died of pneumonia. Only 1 among 8 deaths from congenital heart disease was due to phthisis, although 3 patients died from pneumonia and infantile diarrhea respectively. Secondary infections were responsible for over 15 per cent. of the deaths which occurred among 109 subjects of chronic valvular disease. Pneumococcic infections were the most numerous, being 14 times more common than tuberculous infection. Six patients out of a series of 31 cases of diabetes succumbed to phthisis, while of 18 patients who died either from coma or convulsions, recent pulmonary tuberculous lesions were found in 4. Non-tuberculous gangrene of the lungs and pneumonia occurred in 2 cases. Charles also discusses in this connection, epilepsy, blood diseases, cancer and tubercle, and chorea and rheumatism, but does not mention any statistics.

### The Lancet, London.

*April 8.*

11 Some Considerations on the Nature of Diabetes Mellitus. W. C. *Bosanquet.*
12 Dissemination of Mammary Carcinoma. W. S. Handley.
13 Mental Disorders of Decay. G. H. Savage.
14 *Investigation into Causation of Puerperal Infections. A. G. R. Foulerton and V. Bonney.
15 *Case of Multiple Neurofibromatosis. H. Littlewood, W. H. M. [illegible] cott.
16 *Treat[illegible] of the Lungs by Means of Tuberculin and Other Bacterial Derivatives. H. B. Shaw.
17 *Case of Esophageal Pouch Successfully Treated by Excision. A. Boyce Barrow and J. Cunning.

14. **Causation of Puerperal Infections.**—The results quoted by Foulerton and Bonney were obtained from the examination of 54 cases in which fever, slight or severe, occurred after either miscarriage (6 cases) or labor at full term. In each of the 54 cases a detailed bacteriologic examination of the contents of the uterus was made, and all bacteria present on the primary culture tubes were isolated in pure culture and studied. In nearly all of these cases a similar examination was made of the vaginal secretion. With a view of obtaining other information a complete bacteriologic examination of the contents of the uterus was made in 12 cases after a normal labor and a normal puerperium. The authors also examined the secretion of the cervical canal of 30 women who showed no signs of pregnancy. In the 12 cases of normal labor the contents of the uterus proved sterile of bacteria. Out of 48 cases of fever after labor at full term, 12 terminated fatally, giving a mortality of 25 per cent. Of 34 cases in which, after labor at full term the temperature rose to above 102, 12 patients died, giving a mortality for this group of 35.3 per cent. In 48 cases of fever after labor at full term the contents of the uterus were sterile in 15 and contained bacteria in 33; the case mortality when bacteria were present in the uterus was 36.3 per cent.; in the other group of cases no deaths occurred.

15. **Multiple Neurofibromatosis.**—At the necropsy in this case tumors were found near the sacrum; in front of the eleventh rib; in the substance of the left pectoral muscle; beside the rectum; in the course of the right median nerve; opposite the left rhomboid muscle; in the substance of the left soleus; in connection with the great sciatic nerve at the edge of the left gluteal muscles; in the course of the left pneumogastric on both sides; in connection with the sympathetic; in the angle between the innominate and carotid arteries; in connection with the plexus gulæ; at the esophageal opening in the diaphragm; in the hepatic fissure; in the spinal canal; in the cauda equina; within the dura mater, and on the posterior root of one of the lowest dorsal nerves.

16. **Treatment of Pulmonary Tuberculosis with Bacterial Derivatives.**—Shaw reviews the treatment of pulmonary tuberculosis by means of various sera and bacterial derivatives, and the results obtained. He says that judging from the evidence at hand, it seems that the use of the tuberculins materially improves the results of treatment, and that, therefore, it is quite justifiable to supplement the ordinary treatment by sanatorium methods with this specific one. Tuberculin treatment is of little use alone.

17. **Esophageal Pouch.**—The symptoms in the case cited by Barrow and Cunning simulated those produced by a malignant disease of the esophagus, plus regurgitation of food, which, on examination, was found not to contain free hydrochloric acid. It was also possible, by making pressure at the base of the neck, to squeeze up gas. A large esophageal bougie met an obstruction of some kind eight inches from the teeth. At the operation there was found at this point, to the left and behind the esophagus, a white fibrous coated pouch one and a half inches long. The neck of the pouch was in the lower part of the posterior wall of the pharynx. The fibrous coat of the neck of the pouch was divided and turned back as a cuff. The mucous membrane was ligatured and cut through, and the fibrous coat was stitched up over it. A few stitches were put in to bring the muscular coat together over the site of the neck of the pouch. The patient was fed by nutrient enemata for seven days, and at the end of a fortnight was discharged with the wound healed and able to swallow any kind of food.

### Journal of the Royal Army Medical Corps, London.

*April.*

18 Local Influences in Enteric Fever and Their *Investigation.* R. J. S. Simpson.
19 Hints for Beginners on the Development, etc., of *X*-Ray Negatives. H. Henry.
20 Cox's New Platinum Contact Breaker, for *Use* with Spark Coils. W. F. Stevenson.
21 *The Active Immunization of Experimental Animals with Typhoid Cell Juices. A. B. Smallman.
22 Medical Notes on War. E. B. Knox.
23 *Local Analgesia. J. W. Houghton.
24 Researches on Malaria. R. Ross.
25 *Zittman's Treatment for Syphilis. G. H. Sylvester and C. B. Crisp.
26 Malignant Syphilis. H. C. French.
27 Report on Enteric Fever Among the Personnel of No. 4. *General* Hospital Mool River, Natal, with Reference to Drinking Water Filtration. H. H. Johnston.
28 *Modification of the *Telephone* Bullet Extractor. W. Sheen.
29 Seven Cases of Perforating Gunshot Wounds of the Skull. G. E. Moffet.

21. **Immunization with Typhoid Cell Juices.**—The purpose of the inquiry made by Smallman was to test the feasibility of preparing a bacteria-free and fluid vaccine, and of standardizing the same, not in terms of bacilli, but in terms of the soluble immunizing substance it might happen to contain. The

material was obtained with the aid of the cold-grinding method employed by MacFadyen and Rowland. The typhoid organisms were grown on the surface of agar bottles, at blood heat, for about 20 hours. The growth was washed off with salt solution and the bacteria spun out in a high-speed centrifuge. The spun-out bacteria were next reduced to the consistency of a pasty mass on the surface of a Chamberlain filter, and triturated at the temperature of liquid air. The resultant mass was taken up in salt solution and centrifugalized. The cell juice was, as a rule, equivalent to a 10 per cent. solution of the intracellular constituents contained. This typhoid cell juice, as Smallman terms it, contained from .15 to .2 per cent. of solid matter. It was injected subcutaneously into guinea-pigs, and after varying intervals of time the protection afforded was tested by the intraperitoneal injection of virulent typhoid bacilli. The dose ranged from .06 to .006 c.c. of typhoid cell juice. The smaller dose had the same protective effect as the larger, and that after a period of eleven days. A protective effect was demonstrable with a dose of 1/1000 c.c. at the end of seven days. A series of animals which had been inoculated with 0.25 c.c. of the cell juice was tested on the tenth day after injection. Out of 5 guinea-pigs tested 4 survived an injection of from 3 to 5 lethal doses of the typhoid bacillus. Smallman is convinced that a bacteria-free and fluid typhoid vaccine can be prepared by the mechanical method employed, and that a very small amount of the soluble constituents of the typhoid organism is necessary for the active immunization of experimental animals.

23. **Local Analgesia.**—Houghton comments on the value of local analgesia produced by the injection of B. eucain and adrenalin chlorid. Some of the operations in which he has employed this solution are: 1. Removal of a cystic tumor attached to the periosteum of the scalp. 2. Removal of a fibroma attached to the posterior aspect of the left trochanter, involving dissection from the bone. 3. Opening a knee joint for removal of loose cartilage. 4. Excision of five varicose veins. 5. Excision and ligature of external piles in a case where chloroform was inadmissible. 6. Opening and draining abscess of liver. 7. Varicocele. 8. Laparotomy for perforating enteric ulcer.

25. **Zittman Treatment of Syphilis.**—Sylvester and Crisp have subjected 23 cases to this method of treatment. Of these 18 went through the treatment once, 4 twice, 1 thrice. In 17 cases a great deal of good resulted; in 2 there was some improvement only; in 1 there was very slight improvement only; in 3 there was practically no result. In all these cases there was considerable gain in weight after the treatment and the general condition was greatly improved. Ulcers, when present, became smaller and often dried up, and syphilitic pains in the joint generally became less severe. The authors say that, taken as a whole, the Zittman treatment seems to have much more effect on skin and connective tissue lesions, and in improving the general health and causing increase in weight, than it has on cases suffering from syphilitic pains in the joints.

28. **Modified Telephone Bullet Extractor.**—The ordinary Hedley's telephone probe has been modified by Sheen so as to increase its utility and to insure asepsis when it is in use. The wire connecting the probe with the telephone receiver has a fixed covering of rubber for two feet nearest to the probe. This part of the apparatus can, therefore, be boiled or immersed in a disinfectant. The silver probe used is graduated in centimeters. It retains its original form, blunt at one end, and pointed at the other. Two pairs of forceps have been constructed. They are graduated in centimeters from the extremities of their jaws. The smaller pair is a slender, rounded forceps 17 cm. long, and is intended especially for brain work, having the joints situated as near to the handles as is consistent with adequate rigidity so as to minimize the excursion of the blades. The larger pair, 21 cm. long, is more strongly constructed for general work, and is in pattern similar to the well-known "French" model of bullet forceps. In each pair of forceps the jaw part of one blade is grooved obliquely on its interior from base to point, the groove running a very short distance on the outer aspect of the forceps. When the probe has detected the foreign substance this groove permits the forceps to be slid along the probe down to it. For attaching the forceps to the telephone wire a piece of stout silver wire, No. 6 French catheter gauge, is used. This wire fastens into an attachment on the handle of the forceps, and its use permits all parts of the apparatus that may come in contact with the wound area to be sterilized by boiling.

### Bristol Medico-Chirurgical Journal, London.

*March.*

30 *Prevention of Apoplexy. T. C. Allbutt.
31 Some Notes on Examinations for Life Assurance. R. S. Smith, Bristol.
32 *Nephropexy by Means of the Application of Strong Carbolic Acid and Temporary Support, with Report of 8 Cases. T. Carwardine.
33 *Advantages of Enucleation of the Tonsils Over Their Removal by the Guillotine. E W. H. Groves.

30. **Prevention of Apoplexy.**—Allbutt contends that prevention of apoplexy must lie first in the detection of a special tendency to a persistent mean rise of the arterial blood pressure. If this tendency be detected in its earlier phases, in many instances it can be reduced and kept down; but the longer the story, the older the rearrangement of parts, the harder reduction becomes. Every adult of the age of 40 and upward should have his blood pressures measured by the best instruments available every five years until the age of 60, when, if there be no great increase, the danger of apoplexy may be disregarded. Persons showing a persistent rise of mean pressure should be advised to revise their mode of living, to take regulated exercise, to abstain from alcohol, and to reduce the intake of food.

32. **Nephropexy.**—Carwardine describes his method as follows: The transverse or the oblique lumbar incision is employed, the patient lying on the side with the opposite loin supported by a pillow in order to increase the ileocostal space, although the longitudinal dorsal incision can be made if preferred. The muscles are in part divided and in part separated in the direction of their fibers. On complete division of the lumbar aponeurosis all excess of loose perirenal fat is excised. The kidney is stripped of its surroundings and is then brought carefully onto the loin by its lower pole, the body and upper pole following. Gauze pads are placed in the wound, and the whole surface of the exposed kidney is thoroughly painted with strong liquid carbolic acid two or three times by means of a swab held in pressure forceps. The upper pole in particular should receive thorough treatment. The gauze is then removed and the kidney is replaced in its normal position. The center of a strip of iodoform gauze some 18 inches long is next placed around the lower pole of the kidney to act as a loose temporary sling during the granulating stage, and after the anterior part of the wound has been sutured a second piece is inserted lightly down to the kidney, and over this the two ends of the first piece are tied together loosely. This securely anchors the kidney for the time. Plenty of absorbent dressing is applied, a firm pad of absorbent wool is placed over the hypochondrium in front, and the whole is secured by a carefully adjusted binder. The wound may be dressed every other day during the first week, the gauze packing being renewed when necessary. The sling of gauze may be left for ten days, or a fortnight, or longer, if necessary. The recovery in each of the 8 cases in which Carwardine employed this method was perfectly satisfactory. From a careful examination of the cases so treated he thinks it impossible for the kidney to become loose again.

33. **Enucleation of Tonsils.**—It is suggested by Groves that if the tonsils have to be removed, the aim should be to remove them completely, and this can only be done by enucleation in a number of cases occurring chiefly in adults. Furthermore, enucleation should be resorted to without delay in those cases of recurrent tonsillitis in which the whole tonsil lies buried behind the level of the fauces. The advantages of the operation are that it insures complete and thorough removal of the gland, thus securing a relief from annoying throat symptoms which can not be obtained in any other way; and the operation is performed more easily than the one usually resorted to—removal by guillotine. Its only drawback is that it requires a deep anesthesia by ether or chloroform. There are no dangers in the operation apart from the anesthetic. Hemorrhage is less than in the cutting operation, and can be

reduced to a minimum by a preliminary injection of 5 minims of a 1 in 1,000 solution of adrenalin chlorid into each peritonsillar region. There need be absolutely no fear of wounding the internal carotid artery.

### Revue de Gynécologie, Pozzi's, Paris.

*Last indexed page 427.*

34 (VIII, No. 6.) *De la dégénérescence néoplasique des ovaires dans le cancer de l'utérus. F. Jayle and E. Papin.
35 *Le sarcome primitif de l'estomac (of stomach). P. Lecène and J. Petit.
36 (IX, No. 1.) *Etudes sur les hémorragies des grands Kystes de l'ovaire sans torsion du pédicule. C. Daniel.
37 **Eventration abdomino-vulvaire droite. Mauclaire.*
38 Note sur 2 cas de hernies avec glissement du gros intestin, descente du rein et déviation de l'aorte (with sliding down of large intestine and kidney, etc.). A. Baumgartner.
39 *Duration of Process of Reduction of Oxyhemoglobin in Abdominal Surgery and in General Pathology.—De la durée de la reduction de l'oxyhemoglobine. E. Duroux (Lyons).
40 *La cure esthétique des hernies. H. Morestin.

34. **The Ovaries in Case of Cancer of Uterus.**—Jayle and Papin advocate the systematic removal of the ovaries with the uterus in all cases of uterine cancer. Even when the ovaries are apparently sound, they may be histologically affected, and they are liable to have a primary epithelioma develop in them sooner or later. In one of Jayle's cases a cancer developed in the ovary five years after vaginal hysterectomy for cancer of the body of the uterus. In another case a primary cysto-epithelioma developed in both ovaries after abdominal hysterectomy for cancer of the cervix. Cases of direct propagation or metastasis to the ovaries are not rare, and the ovary is also liable to be the seat of a papilloma or fibroma, with or without evidences of epithelioma.

35. **Primary Sarcoma of Stomach.**—Lecène and Petit add another to the 58 cases on record of primary sarcoma of the stomach. The most common variety is that which projects into the abdominal cavity as a large symmetrical tumor, sometimes even being pedunculated. Gastric sarcoma may simulate gastric carcinoma from the clinical point of view, or it may develop without any symptoms on the part of the stomach, and may suggest merely an abdominal tumor. The youth of the patients (17 to 20, as a rule), aids in differentiating the sarcoma. Thirty-four cases from the literature, not operated on, are summarized, and 23 in which an operation was performed. The patients were generally extremely debilitated before surgical interference, but about a dozen were cured by it.

36. **Hemorrhages in Case of Ovarian Cysts.**—All kinds of ovarian cysts are liable to bleed inside. The hemorrhage is favored by degeneration of the coats of the cyst and by rupture, puncture or other complication. The signs of the hemorrhage vary with its amount, and according as the effusion makes it way into the walls or into the cyst proper or into the peritoneum. The diagnosis is easy when the hemorrhage is severe, but otherwise it is usually first discovered during the operation. Laparotomy without delay should be the rule in every case of a bleeding ovarian cyst. Even during pregnancy, the same rule prevails. Pinard asserts that all danger of interrupting the pregnancy may be averted by systematic use of injections of morphin during the days after the operation. Daniel gives a résumé of 18 cases from the literature.

37. **Postoperative Hernia and Its Cure.**—A woman of 35 had been operated on for double salpingitis. Hernia in the median line developed a few months later, the hernial sac finally sliding into the right labium. The hernia was cured by suturing the neck of the sac and then turning it back sideways on itself to form a three-fold cover for the opening; this cover was then sutured to the aponeurosis of the rectus.

39. **Reduction of Oxyhemoglobin as Test of Vitality.**—Duroux bases this test on the fact that the life of the tissues depends on the life of the oxyhemoglobin. The latter is reduced by the tissues with more or less facility in proportion to its vitality. Reduction with ammonium sulphid of oxyhemoglobin from different specimens of blood always proceeds the same in case the blood is normal. The variations from this standard behavior are characteristic and instructive. Two drops of blood drawn from the finger are examined in the spectroscope and the two broad black bands characteristic of oxyhemoglobin are noted. Two drops of ammonium sulphid are then placed on top of the blood. In case the blood is normal the two black bands will be seen to draw closer together by the sixtieth second, and by the seventieth second they blend into a single band. In case of a person in shock, the oxyhemoglobin will be found inert; the normal interchanges are suspended, and the oxyhemoglobin is no longer able to preside over them. In this case its bands in the spectrum are likewise inert and show no tendency to blend into a single band, even after one, two or three minutes, until they finally creep together and reduction and fusion take place. On the other hand, in blood from a febrile subject the bands fly together and rapidly unite to make a single band by the thirtieth second. The pulse rate is another element that may be regarded in the diagnosis from the reduction of oxyhemoglobin. In a normal subject, with a 70 pulse the reduction of the oxyhemoglobin occurs in 70 seconds. Hence we can say that 70 divided by 70 equals 1, the normal standard. In 30 healthy persons the reduction occurred invariably at the seventieth second. The difference did not once surpass 5 to 10 seconds. In 34 patients with cancer, the reduction did not occur under 95 seconds in a single instance and the average was in the neighborhood of 2 minutes. In 5 traumatic cases, the reduction required 3 minutes in some cases, but as the patients recuperated reduction occurred in 85 seconds, and returned to normal as recovery progressed. Jaboulay thinks that there can be no question that operation, a traumatism, a brain affection or an infection can act on the nerve centers that control the respiratory functions and also on the blood-forming organs. Under the influence of an anesthetic, these nerve centers suspend their functioning more or less. The incitation which they transmit to their agents is, therefore, lessened and deteriorated in quality or it is suspended altogether. The oxyhemoglobin, thus suffering from lack of normal control, gives up its oxygen sluggishly. The whole series of phenomena observed is essentially a slowing of the nutritional processes for the time being. If the inhibition of the centers is complete, the nutritional processes are not only slower than normal, they are liable to be suspended altogether, and we behold traumatic shock. The sum of the reflexes is liable to be so large in such a case that the inhibition may be total and death may ensue before the oxyhemoglobin has shown the least tendency to reduction. His clinical experience has fully confirmed these assumptions. Cases of dementia with stupor are like the Hindoo fakirs. They can exist for months on a quart or a pint of milk and yet they keep in the same condition, as the reduction of their oxyhemoglobin proceeds so slowly that the combustion of their tissues is retarded likewise and their vitality is husbanded. In fever, the reverse is observed. The centers are irritated and perform their functions in a hasty, irregular way. The oxyhemoglobin is unable to retain its oxygen and yields it at once to the tissues, which soon become exhausted and used up by their over-active combustion.

40. **Esthetic Treatment of Hernia.**—Morestin describes with 5 illustrations the technic by which he operates in case of inguinal or other hernia without leaving a perceptible scar. The incision is very short, in the hair above the pubis, and the results in his 12 cases have been remarkable satisfactory. He epitomizes the salient points of each.

### Archiv f. Gynäkologie, Berlin.

*Last indexed page 252.*

41 (LXXIV, No. 1.) Origin of Intramuscular Branching of Lumen of Tube.—Zur Frage der Enstehung intramusculärer Abzweigungen des Tubenlumens. O. Hoehne.
42 Serum-Behandlung bei Puerperal-Fieber. H. Peham.
43 Benign Tumors of Ovary.—Zur Kenntnis der gutartigen bindegewebigen Neubildungen des Ovariums, insbes. der Myome. G. L. Baso.
44 Thrombosis in Puerperium.—Thrombose und Embolie im Wochenbett, sowie die auf. derselben Grundlage beruhenden Lungen-Erkrankungen der Wöchnerinnen. A. Richter.
45 Die Leukocytose in der Gravidität, intra- und postpartum, und die Leukocytose Neonatorum. J. Arneth.
46 Carcinoma clitoridis. C. Schmidlechner (Budapest). Two cases.
47 Perithelioma labii majores. Id.
48 Ulcus vulvæ rodens Virchow. Id.
49 Origin and Significance of Leucocytosis.—Zur Frage der Entstehung und Bedeutung der Leukocytose. R. Bernbaum.
50 Is It Superfluous to Suture the Peritoneum After Vaginal Hysterectomy?—Ist die Peritonealnaht nach vaginaler Total-Extirpation des Uterus überflüssig? K. Czerwenka.

51 (No. 2.) *Artificial Interruption of Pregnancy; 228 Cases.—Ueber die künstliche Unterbrechung der Schwangerschaft durch die Bougiemethode. Erfahrungen über die Indikation und Methode aus 228 Fällen. Jacoby (Mannheim).
52 Action of Streptococcus on Uterine and Vaginal Mucosa.—Experimentelle [illegible] Einwirkung des Streptococcus [illegible] haut der Gebärmutter und de[illegible]
53 Accumulation of Blood with Double Genitalia and One Side Occluded.—Ueber Blutänhaufung bei doppelten Genitalien mit Verschluss einer Seite. R. Katz.
54 *Beitrag zur Klinik der Ovarialtumoren. W. Lippert.
55 Ueber die Genese, Diagnose und Therapie der Pyo-Tubo-Ovarial-Cysten. O. Schaeffer.

**51. Artificial Interruption of Pregnancy with the Bougie.**—Jacoby reports 228 cases and states that the mortality was 4 in the last series of 121 mothers. In 50 cases of contracted pelvis, 31 of the children, 65 per cent., were born alive. The article issues from Mermann's maternity at Mannheim. The morbidity of the bougie deliveries was no higher than that of the normal births. The cases are grouped by indications. The bougie used was about 8 to 10 mm. in diameter, and it never failed to accomplish its purpose.

**54. Ovarian Tumors.**—Lippert reviews 638 cases of ovarian tumors or parovarian cysts operated on at Zweifel's clinic, at Leipsic. The total mortality was 5.17 per cent. In the malignant cases, the mortality was 13 per cent. and in the nonmalignant 3.7 per cent. Five patients succumbed to embolism of the lungs. The operations had been exceptionally complicated in these cases, with adhesions, or a supplementary fixation of the uterus or herniotomy. With one exception, the embolism occurred in the second week, as the patients were convalescing finely. No overexertion was known in any case as cause of the embolism. The patients were lying quietly in bed when taken with dyspnea, which proved fatal in twenty minutes at farthest. The origin of the emboli could not be discovered in one case, but in the others thrombosis in the pelvic or hypogastric veins was evident.

### Münchener medicinische Wochenschrift.

56 (LII, No. 12 March 21.) *Treatment of Epidemic Cerebrospinal Meningitis.—Zur Behandlung der epidemischen Genickstarre. H. Lenhartz.
57 *Die Resultate der prophylaktischen Impfung mit Diphtherie-Heilserum im städtischen Mariahilf-Krankenhause zu Aachen. F. Wesener.
58 *Blood in Tuberculosis.—Blutuntersuchungen bei der Tuberkulose der Lungen und bei der Tuberkulinkur. J. Arneth.
59 "Thinned-out Regions" in Central Nervous System.—Ueber sogenannte "Lichtungsbezirke" im Zentralnervensystem. H. Schmaus.
60 *Ueber menschen-pathogene Streptokokken. E. Fraenkel.
61 *Ueber hydroelektrische Behandlung der Herzfunktionsstörungen (of functional heart disturbances). G Zimmermann.
62 *Ueber die Dilatation zikatrizieller Stenosen der Speiseröhre durch das Oesophagoskops. A. Reizenstein.
63 *Ueber Pseudo-Aszites bei Ovarial-Tumoren und dessen klinische Bedeutung. K. Hörmann.
64 *Diagnosis of Death from Drowning.—Weiterer Beitrag zur gerichtsärztlichen Diagnostik des Ertrinkungstodes. Revenstorf.

**56. Treatment of Epidemic Cerebrospinal Meningitis.**—Lenhartz has had occasion to treat 45 cases of epidemic cerebrospinal meningitis during the last ten years. His experience has confirmed him more and more in the belief that systematic and repeated lumbar puncture has a decided and favorable effect on the disease. He gives several case reports in detail to show the marked benefit that followed the punctures. In the case of one young woman the punctures were repeated daily for six days and then twice more at longer intervals. The cerebrospinal fluid was under pressure of 360 and 430 at the two first punctures, and 14 and 24 c.c. of the fluid were allowed to escape. It was very turbid. The leucocytes numbered 22,000 once, but generally ranged from 15,000 to 19,000. He cites also a case illustrative of the group in which the punctures were first made late in the case to ward off threatening acute hydrocephalus. The aggravation of symptoms about the fortieth day suggested this complication and puncture showed a pressure of 490 and 320 mm. After escape of 25 and 37 c.c. the condition improved remarkably, but severe symptoms recurring two days later, the punctures were repeated morning and evening and again the next morning, after which the patient, a young man of 21, was able to sit up for an hour. This was the sixty-seventh day of his illness, and complete recovery soon followed. No ill effects from the punctures were observed in any instance; the technic is simple and easy, and can be applied in the home. He warns against allowing more than 50 c.c. of the cerebrospinal fluid to escape. The Weichselbaum-Jäger intracellular diplococcus was found in 40 out of his 45 cases.

**57. Antidiphtheria Serum as Prophylaxis of Diphtheria.**—Wesener reviews his experience with 1,745 cases of diphtheria at Aix. It is his practice to inform the person accompanying the sick child to the hospital of the danger of the spread of the disease, and to propose to give all the children in the family a preventive injection of the serum if they are brought to the hospital. This is usually done, and nearly two hundred and fifty of such injections have been made. Only 4 of the children thus protected contracted the disease, and in 3 it developed within forty-eight hours, showing that it must have been already installed. In the single failure in the series the disease was so mild that it seemed to be merely an ordinary sore throat, but the discovery of diphtheria bacilli caused it to be accepted as genuine diphtheria. The protection conferred by the injections is not absolute, but it enables the isolation of the patient to be less strict. The period of protection lasts about three or four weeks; this is usually sufficient for the purpose if the premises are disinfected.

**58. The Blood in Tuberculosis and Under Tuberculin Treatment.**—Arneth's original views in regard to the behavior of the leucocytes in infections were summarized in The Journal on page 577 of the last volume. The blood is always much altered in case of febrile tuberculosis, he affirms. Examination of it from time to time will show the progress that is being made under treatment. When the blood findings remain bad, although other signs indicate recovery, the prognosis is unfavorable, and vice versa. Almost all the remedies and measures recognized as beneficial in tuberculosis possess the property of stimulating the leucocytes, and it is to this property that they owe their effect, as they increase the capacity of assimilation and nutrition of the neutrophiles. These cells act only in the way of reaction, that is, after having previously had some increased demand made on them. This renders the possibility of the discovery of some ideal active cure a very remote one. But it renders more promising the prospects of the ultimate discovery of some sovereign cure by way of passive immunization.

**60. Pathogenic Streptococci.**—Fraenkel describes the peculiarities of the two kinds of streptococci which Schottmüller segregated by his blood-agar plate cultures. One of them, the *Streptococcus viridans*, seems to be concerned in the production of certain forms of endocarditis distinguished by a protracted course and special temperature curve. The other, the *S. mucosus*, seems to be involved in the production of true fibrinous lobar pneumonia. Fraenkel urges that greater attention should be paid to bacteriologic examination of the blood from the heart postmortem. Very valuable and reliable information can thus be derived.

**61. Electric Baths in Heart Disease.**—The capability of the heart to respond to stimuli is the criterion as to the possible efficacy of hydroelectric procedures. There must be a reserve force to call on, and this is the main point, not how much the organ is hypertrophied. As general indications for the alternating current baths, he accepts disturbance in the circulation with low blood pressure, signs of incipient failure of compensation, moderate fatty infiltration with general corpulence, and atonic conditions of the heart muscle and arteries. In advanced cases of sclerosis of the heart and arteries, the indications are more for the Nauheim baths. A combination is excellent in certain cases.

**62. Esophagoscopy in Dilation of Stenosis of Esophagus.**—Reizenstein has found it possible to work a flexible sound through what had appeared to be an absolutely impermeable stricture before the esophagoscope had been introduced. He relates some of his experiences. Among them is that of a small child who preferred esophagoscopy to blind groping with sounds. Cocain can be dispensed with for the esophagoscopy.

**63. False Ascites in Case of Ovarian Tumors.**—The necessity for exploratory celiotomy, even when sure of malignant disease, is well brought out by the 2 cases reported by Hörmann. The symptoms imposed the diagnosis in one case of cancer of the ovaries with metastases in the cul-de-sac and hydromphalocele with considerable ascites. The tumor was the size of two children's heads, but proved to be a benign pseudomucinous cystadenoma, and the effusion had been the pouring out of its secretion through a perforation. This fluid had induced symptoms of irritation in the cul-de-sac, and they had been accepted as malignant metastases. If it had not been for the routine practice of exploratory laparotomy in every case at von Winckel's clinic, this one would have been deemed inoperable as the diagnosis and hopeless prognosis were considered beyond all question.

64. **Medicolegal Points in Death from Drowning.**—Revenstorff epitomizes his article in the following statements: Hemolysis of the blood is one of the earliest macroscopic signs of putrefaction. It is not due to physical influences nor to autolytic processes, but rather to bacterial action. The blood in the portal vein shows this cadaveric hemolysis most; next comes the blood of the right heart and of the afferent vessels, while the left heart and the arterial system show the hemolysis least. If an anisotonic fluid makes its way into the capillaries or lung tissue and thus comes in contact with the blood corpuscles—provided that there is enough difference between the concentration of the fluid and that of the body fluid—the blood corpuscles involved become dissolved. This is what he calls "drowning hemolysis." This drowning hemolysis differs from the ordinary cadaver hemolysis by the fact that the serum of the left heart shows a higher degree of hemolysis than the serum of the right heart. Lung tissue juice, pleural transudate and pericardial fluid, if they do not contain any free hemoglobin, are free from admixture with the drowning medium. Edema caused by presence of water always has a serum containing hemoglobin. A colorless serum indicates true lung edema. The drowning hemolysis is a qualitative sign of death from drowning which is more delicately accurate than any other physical method of determining the presence of the drowning fluid in the blood. The lack of appearance of pigment in the contents of the portal vein, with the existence of drowning hemolysis in the blood of the heart, is a positive sign that the drowning fluid did not diffuse until after cessation of the movement of the blood in the heart.

### Wiener klinische Rundschau, Vienna.

*Last indexed page 750.*

65 (XIX, No. 4.) Pre-Columbian Bones.—Ueber präkolumbische Knochenfunde im Hinblick auf die Frage über die Provenienz und das Alter der Syphilis. J. Neumann.
66 Beitrag zur Osophagoskopie der gutartigen Osophagusgeschwülste. L. Harmer.
67 *Mental Disturbances in Revival After Hanging.—Zur Kasuistik der Geistesstörungen bei Erhangten nach Wiederbelebung. B. Bayerl.
68 (No. 5.) Angina, Erythema exsudativum multiforme, *Pleuritis* exsudativa dextra. D. Epstein (Kiev).
69 (No. 6.) Thermo-elektrische Versuche zu diagnostischen Zwecken. W. Goebel.
70 Ueber einige seltene Fälle von Brustdrüsenerkrankungen (unusual cases of mammitis). B. Müller. (Concluded.)
71 (No. 8.) Das Manifest-Werden latenter Darm-Stenosen infolge Peritoneal Infektion. E. Fuchsig.
72 Ein Beitrag zur traumatischen Lungenhernie. Durlacher. (Concluded.)
73 (No. 9.) *Die neuen Erfahrungen und Fortschritte auf dem Gebiete der Pathologie der Wutkrankheit (rabies). E. Bertarelli (Turin).
74 Aneurysma der Aorta ascendens und Aneurysma der Arteria innominata mit Durchbruch in die Vena cava superior. C. Hödlmoser. (Concluded.)
75 Inhalation, ein wertvolles therapeutisches Hilfsmittel. A. Bulling (Reichenhall).
76 (No. 10.) Ueber disseminierte Fettgewebsnekrose der Bauchhöhle (fat tissue necrosis in abdomen). B. Müller.
77 (No. 12.) Neurologische Kasuistik. A. Fuchs. (Commenced in No. 10.)
78 *Influence of Cortex on Menstruation and Treatment of Menstrual Disturbances by Hypnotic Suggestion.—Der Einflus zerebraler Momente auf die Menstruation, etc. H. Delius. (Commenced in No. 11.)

67. **Mental Disturbances After Revival from Hanging.**—A young man arrested for murder tried to commit suicide by hanging, but was revived. As the vital functions were restored the patient was found in acute mania, with dilated, non-reacting pupils, etc. This maniacal condition lasted for several days and gradually subsided. He never showed any evidences of mental disturbance before or after.

73. **Italian Researches on Rabies.**—Bertarelli reviews the work that has been done in Italy during the last two or three years on the etiology, diagnosis and treatment of rabies. He states that in more than a thousand tests, the Negri bodies were never found in animals that were free from rabies, as determined by inoculation of rabbits. On the other hand, they were always found in infected animals with only 3 exceptions, and in these only a part of the nervous system had been examined. These constant findings suggest that examination of the hippocampus major—their chosen site—will decide that the case is one of rabies in case of positive findings, while negative findings almost inevitably exclude the disease. It is wise, however, to make a supplementary test by inoculation of rabbits. Mere examination of the hippocampus major will be found sufficient in most cases, and will thus simplify the procedures in case of a suspected animal. The scraps of the hippocampus may be hardened in saturated sublimate solution or in absolute alcohol; the staining is best done by the Mann eosin-blue technic or by fixing the scraps in osmic acid, leaving them then for a few hours in alcohol. Sections can then be made by hand and may be tested at once in glycerin, or after treating with balsam, when the Negri bodies show up black at once. This simplified technic, dispensing with other staining and embedding in balsam, has proved very successful in practice at Turin. It is advisable to have a few scraps of the cerebellum and some ganglia ready in case of negative findings. Extensive research by numerous Italian investigators has established that it is impossible to produce these Negri bodies by any artificial measures, and that they are never observed in any condition except rabies. Volpino has presented evidence to show that these bodies contain each a central, basophile small body, which consists of two parts with different staining affinities. The saliva of rabies patients is sometimes virulent and sometimes not. Nitsch has tried to solve the question as to the harmlessness of "fixed virus" by injecting a certain amount subcutaneously into his own abdomen. Several months have since elapsed and he has shown no symptoms of any kind from this source. Valenti of Pavia has recently demonstrated that quinin is able to neutralize the virus of rabies in the test tube and also in the living subject, while no other alkaloid has displayed this property. This, Bertarelli remarks, confirms the assumption as to the protozoon nature of the Negri bodies and suggests new therapeutic possibilities. [The Negri bodies are described as being found usually inside the cells, but exceptionally outside. They consist of a fundamental, non-granulated substance, homogeneous, resembling coagulated albumin in appearance, with bright spaces which may be smaller bodies or merely vacuoles. Very rarely the bodies assume peculiar shapes, curved or long drawn out or fragmented. They react to an iodoiodid solution like the red corpuscles, but the smaller bodies or vacuoles take the stain fainter. These central dots respond with blue instead of red to the methylene blue-eosin stain. D'Amato reported extensive research on the Negri bodies in the *Riforma Medica* last year, Nos. 23 and 45, 1904. His results confirmed those of previous workers. Poor's work in this line was summarized in these columns, recently, page *1401.—Ed.*]

78. **Hypnosis in Treatment of Menstrual Disturbances.**—Delius writes from Hanover to report his successful experience in curing by suggestion painful menstruation or restoring the menses after long amenorrhea, or arresting excessive menstrual bleeding. He regards menstrual disturbances in general as an evidence of altered excitability of the brain cortex, inducing general nervousness, neurasthenia, hypochondria or hysteria, which manifest themselves in disturbances in the menstrual functions. The excessive or deficient discharge is governed by the same exaggerating or inhibiting influences that induce nervous diarrhea and nervous constipation. The pains are due to the centripetal stimuli which are too weak to cross the "stimulation threshold" in normal individuals. In the overexcitable cortex of the cases in question, these stimuli are perceived as painful sensations. He tabulates the particulars of 60 cases treated by application of hypnosis, which he regards as an excellent means to reduce the overexcitability of the cortex and to restore normal transmission of stimuli. The difference between waking suggestion and suggestion in the hypnotic sleep is only a question of degree; there is no qualitative difference between them. Every abnormal menstruation irritates anew the overexcited neuron in the cortex, and this reduces the "stimulation threshold" still lower each time.

Suggestion, re enforced by encouraging and stimulating advice, will raise the stimulation threshold until the neuron no longer feels the stimulus, and thus gets a chance to recuperate, and soon its normal balance is restored. Among his patients was one woman of 32 who complained of uterine colic every fourteen days. A single hypnotic sitting cured the pain and restored the normal interval. Climacteric hemorrhage was also controlled in a single sitting in 2 instances Only a single one of the 60 patients proved refractory to the suggestion. Amenorrhea for more than a year, with recurrence of pains each month, was promptly and permanently cured by a few sittings at the onset of the monthly period, repeated the second month. In one case a dysmenorrheic opera singer begged to have the menses advanced a few days to allow her to fill a certain engagement. In another case of nervous prostration the patient made the same request to enable her to start on a journey at a certain date. Suggestion in hypnotic sleep in each case produced the desired effect. The period recurred regularly and painlessly afterward. He found somnambulism in more than 41 per cent. of his 60 cases while in a series of cases of constipation it occurred in only 19 per cent. He ascribes this difference to the large numbers of anemic patients in the menstrual series Chlorotic subjects generally respond with deeper sleep than others.

### Russky Vratch, St. Petersburg.

*Last indexed page 1235*

79 (III No 5) *Acute Ileus in Connection with Gynecologic Affections—Ob ostroe neprokhodimosti kishek s svyazi s zabolyevaniyami zhenskikh polovykh organov G T Tzeidler
80 *Saline Infusion in Treatment of Mental Disease—Soleyya vlivaniya v terapii dushevnykh bolyeznei B S Greidenberg
81 Electric Baths in Treatment of Cardiac Insufficiency.—O lyetchenii nedostatotchnosti serdetchnoi myshtzy posred strom vann s 3 phazym sinusoidalym peremyennym tokom A. A Ekk
82 (No 6) *Radical Treatment of Cancer of Uterus—O korennom lyetchenii raka matki V N Orloff
83 (No 7) Fundamentals of Medicine and Tasks of Medical Societies in Russia—Principialnya osnovy myshleniya v med., etc A D Pavlovskii
84 The Individualizing Method for Studying Laws of Growth in Human Body—Individ sposob pri izutchenii zakonov rosta, etc A O Karnitzki.
85 Phagocytosis and Leucolysis After Injection of Virulent Streptococci into Abdominal Cavity.—O phagotzitoz i leukoliz pri vpryskivanii v briushniu polost virulentykh streptokokkov F V. Bukoemski
86 (No 8) *Omentopexy in Ascites from Cirrhosis of Liver—Operatziya Talma pri briushnoi vodvanki ot cirrhosa petcheni i resultaty eya. V. S Kozlovski
87 Sovremennoi sostoyanie utcheniya o rozovom shelushashtchemeya lishaye (pityriasis rosea Gibert'a) A I Lyanz (Moscow).
88 *Weight of Children in Case of Contracted Pelvis—Vyes dyetei pri yazkom tazye S S Kholmogoroff
89 Mineral Mud in Caucasus Resorts History and Special Features—O gryazelyetchenii na Kaukazkikh mineralnykh vodakh Ego istoriya i osobennosti D A Parysheff
90 (No 9) *O t naz "vozvrashtchayushtchikheya fibroidakh" matki (recurrent fibroids of uterus) V S Gruzdeff.
91 Experimental Study of Heart Muscle—Ob okotchenyenii serdetchnoi myshtzy. A. N. Zimin
92 (No 10) Fundamentals and Tasks of Operative Obstetrics—Osnovy i zadatchi op akusherstva A A. Anufrieff.
93 *Technic of Removal of Larynx Under Local Anesthesia—K technikye vylushtcheniya gortani pod myestnym obezbolivaniem R. R Vreden
94 Technic of Injecting Lymphatics for Specimens—Sposoby inektzii lymph, sosudov. G M Iosiphoff
95 Decidual Cells in Endometritis—Detzidualnya kyetki pri en- Tabildaroff
96 troperitoneal Glands in Boy of 3—sarcoma zabriushinny zhelez u 3 Y Korolkoff
97 biologii trypanosom V. L Yakimoff (Concluded)

79 Acute Ileus in Connection with Gynecologic Affections.—Tzeidler says that 16 or exactly one-fourth of his cases of acute ileus in women presented evidences of pathologic changes in the genitalia, and describes them in detail He operates at once in these conditions as laparotomy in acute ileus is a comparatively harmless intervention and is borne well by the patient All but 32 per cent of his patients recovered; in ileus from other causes the mortality averaged nearly 52 per cent In 3 of his 5 fatal cases death was due to the progress of a malignant tumor, and in the others to peritonitis

80 Saline Infusion in Treatment of Mental Affections.—Greidenberg advocates subcutaneous injection of physiologic salt solution as a powerfully efficient aid in the treatment of brain troubles. It seems to quiet the psychomotor centers, promote sleep and appetite, and in many cases may be advantageously substituted for the warm bath. The indications for it are psychomotor restlessness, with resulting insomnia and refusal to eat. The patients take the injections without any special resistance. He has thus treated 36 patients; all but 7 were women. The psychosis was acute insanity, generally of a maniacal character, in 10 cases, 4 men and 6 women; periodical and circular psychosis in 8 women; premature weakmindedness in 8 women; mania and melancholia in 2 women each; paralytic dementia in 2 men, catatonia in 1 man and in 2 women, and primary insanity in 1 woman. Each patient received about 5 or 6 injections, the maximum being 15 in a single case. The dose was 250 c.c., gradually increasing to a maximum of 1,500 c c. The injections were made very slowly, from twenty-five to fifty minutes being devoted to each injection. The patient was placed on a low couch, about 21 inches above the floor, and the injection was generally made in the abdomen. The stimulating effect was evident in some cases after an hour or so, in others not until after three or four hours. The tranquillizing effect in many cases after injection of from 1,000 to 1,200 c.c. was as marked as after a warm bath.

82. Experiences with Cancer of the Uterus.—Orloff has operated on 190 patients on account of cancer of the uterus. There has been no recurrence in 23 to date, now three years since the operation, in 9 after five years and in 4 after ten to eleven years, and they all declare that they are perfectly well.

86. Omentopexy in Case of Ascites with Cirrhosis of Liver.—Kozlovsky describes the technic of omentopexy as he has performed the operation on 8 patients He groups and tabulates 168 cases from the literature. In the first group of 51 cases the liver was enlarged; more than 50 per cent. were cured or improved (16 cured and 10 improved). In the second group of 69 cases with atrophic liver, over 42 per cent. were improved (18 cured and 11 improved). In the group of 48 cases in which the liver was of normal size, more than 47 per cent. were improved (14 cured and 9 improved). This gives a total of 78 improved, 7 in which the issue was unknown and 83 in which no improvement was realized. The earlier the operation is undertaken the better the prospects, and especially when the liver is in the phase of hypertrophy.

88 Weight of Children in Case of Contracted Pelvis.—The records of deliveries at the Moscow maternity show that the children born in cases of contracted pelvis averaged less in weight and were shorter than the children born of a mother with a normal pelvis. The proportion of boys was larger than under normal conditions. The pelves with a conjugate diameter of 18 cm. or less and a diagonal conjugate of 12 cm. or less are regarded as under normal size; they formed 14.47 per cent of the total. The second and third children always weighed more than the first one.

90. Case of Recurrent Fibroids.—Gruzdeff's patient was a woman of 44. Another fibroid rapidly developed two or three months after removal of the first, and a third after removal of the second. Hysterectomy was then done, but palpation disclosed not long after seven enlarged lymph glands in the abdomen, some as large as an apple. They were removed by a second laparotomy, and the microscope showed them to be sarcomatous The patient succumbed in a few months to recurrence

93 Extirpation of Larynx Under Local Anesthesia.—Vreden describes his successful removal of the cancerous larynx in a man of 51, under local anesthesia He performed the operation by Billroth's technic, and used a dozen syringefuls of a 1 per cent solution of cocain. The patient recovered rapidly from the operation, and was exhibited in fine condition at the national medical congress a few months later. By avoiding general anesthesia Vreden hoped to prevent the postoperative pneumonia which it favors.

### Hygiea, Stockholm.

*Last indexed page 916*

98 (LXVII. No 1) *Measles and Diphtheria—Morbilli och difteri T. Hellström
99 Difteri bacillens tenacitet vid olika temperatur A. Alfven
100 *Radiography of Kidney Stones—Njursten diagnosticerad medels Rontgenfotograf T Stenbeck
101 *Technic of Publishing Medical Reports—Nagra ord om sättet att publicera med afhandlingar C G. Santesson.

102 (No. 2.) Experiences with Radical Operation in Chronic Suppurative Otitis Media.—Erfarenheter om den s. k. radikalop. vid kronisk varig otitis media. K. Dahlgren.
103 Om serum-terapiens inflytande pa mortaliteten i difteri och strypsjuka i Göteborg. H. Wennerberg.
104 Behandling of kancer med Röntgen-bestralning. I. Bagge.

98. **Measles and Diphtheria.**—Hellström has had occasion to observe 112 cases of measles as a complication of diphtheria, and 117 cases of diphtheria as a complication of measles, during the last ten years at the Stockholm Hospital. In the first group, when the diphtheria was complicated by croup, only 37 recovered and 61 died, while in the 14 cases without croup all the patients recovered but 1. Forty of these deaths were in children under 3. The mortality in the measles-croup cases was 62.24 per cent., while it was only 27.3 per cent. in the cases of uncomplicated croup. The mortality in the 117 cases of measles after diphtheria was only 8. About 91 per cent. of the patients in this group were under 6, and 81 per cent. of those in the first group. In 21 of the patients the diphtheria before the onset of the measles had been of the croup variety. The respiratory organs did not seem to be more seriously affected in these cases than in those without preceding diphtheria. Only one child exhibited a complicating pleuritis later. Since the introduction of serum treatment the mortality of measles-croup has been reduced by nearly 18 per cent., and most of the deaths occurred in cases not seen until almost moribund. The literature on the subject is analyzed, and the necessity for early recognition of the complicating diphtheria is emphasized. When this possibility is borne constantly in mind and serum treatment is instituted in time, the outcome will be far better than at present.

100. **Roentgen Pictures of Kidney Stones.**—A fine radiogram is given of two large oxalate stones in the kidney of a young woman of 21. For comparison, an ordinary photograph is then shown of a group of kidney stones on a card, with those removed from the patient in the center, and a Roentgen picture of the same group. The latter picture is identical with the aspect of the stones in the radiogram of the living subject. The symptoms had been puzzling during the year preceding the detection of the stones in the kidney with the Roentgen rays, but the patient was soon restored to health on their removal through a lumbar incision.

101. **Brevity in Medical Articles.**—This is considered editorially.

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## *Books Received*

Acknowledgment of all books received will be made in this column and this will be deemed by us a full equivalent to those sending them. A selection from these volumes will be made for review, as dictated by their merits, or in the interests of our readers.

WHARTON AND STILLE'S MEDICAL JURISPRUDENCE. Vol. I. Mental Unsoundness. Legal Questions. By Frank H. Bowlby of the Publishers' Editorial Staff. Insanity: Forms and Medicolegal Relations. By James Hendrie Lloyd, A.M., M.D., Neurologist to the Philadelphia Hospital. Vol. III. Physical Conditions and Treatment. Medical Aspects by Truman Abbe, A.B. (Harvard), M.D. (Col.), Assistant to the Professor of Surgery and to Professor of Physiology at the Georgetown University Medical School. Legal Aspects. By Frank H. Bowlby of the Publishers' Editorial Staff. Fifth Edition. Cloth. Pp. 1031 and 692, respectively. Price, $18.00 net, in three volumes. Rochester, N. Y.: The Lawyers' Co-operative Publishing Company. 1905.

THE DETECTION OF POISONS AND STRONG DRUGS, Including the Quantitative Estimation of Medicinal Principles in Certain Crude Materials. By Dr. Wilhelm Autenrieth, Professor in the University of Freiburg. Authorized Translations from the Third Enlarged German Edition. By William H. Warren, Ph.D., Professor of Chemistry, Medical Department of Washington University, St. Louis, Mo. Seventeen Illustrations. Cloth. Pp. 222. Price, $1.50 net. Philadelphia: P. Blakiston's Son & Co. 1905.

APPENDICITIS. Its History, Anatomy, Clinical Etiology, Path[illegible], Diagnosis, Prognosis, Treatment, Technic [illegible] and Sequels. By John B. Deaver, [illegible] the German Hospital, Philadelphia. [illegible] Revised and Enlarged. Containing 64 [illegible] Are Colored. Cloth. Pp. 492. Price, [illegible]akiston's Son & Co. 1905.

FOOD PRESERVATIONS. Their Advantages and Proper Use. The Practical Versus the Theoretical Side of the Pure Food Problem. By R. G. Eccles, M.D., Ph.D., Fellow of the American Association for the Advancement of Science, with an Introduction by E. W. Duckwall, M.S., Member of Society of American Bacteriologists. *Paper. Pp.* 202. Price, 50c. New York: D. Van Nostrand Co. 1905.

AN INTRODUCTION TO CHEMICAL ANALYSIS, for Students of Medicine, Pharmacy and Dentistry. By Elbert W. Rockwood, M.D., Ph.D., Professor of Chemistry and Toxicology and Head of the *Department of Chemistry in the University of Iowa.* Second Revised Edition. Illustrated. Cloth. Pp. 255. Price, $1.50 net. Philadelphia: P. Blakiston's Son & Co. 1905.

*POISONOUS PLANTS OF ALL COUNTRIES*, with the Active Chemical Principles Which They Contain; and the Toxic Symptoms Produced by Each Group. By A. Bernhard Smith, Late Acting House Surgeon to Lord Lister, King's College Hospital, London. Pasteboard. Price, 2/6 net. Bristol: John Wright & Co. 1905.

AN INTRODUCTION TO DERMATOLOGY. By Norman Walker, M.D., Fellow of the Royal College of Physicians of Edinburgh. With 49 Full-Page Plates and 50 Illustrations in the Text. Third Edition, Revised and Enlarged. Cloth. Pp. 285. Price, $3.00 net. New York: William Wood & Co. 1905.

*THE CONJUNCTIVA IN HEALTH AND DISEASE*, Being a Record of Some Research Work. By N. Bishop Harman, M.A., M.B., Cantab, F.R.C.S., Eng., Ophthalmic Surgeon to the Belgrave Hospital for *Children. Cloth.* Pp. 276. Price, $2.50 net. New York: William Wood & Co. 1905.

JUGGERNAUT, Christian Science Exposed. By W. H. Watson, with 243 Illustrations by the Author. Printed in English, German and French. Cloth. Pp. 69. Price, $1.00. Davenport, Iowa: Investigation Committee, Publishers. 1905.

VACCINE VIRUS: METHOD OF PREPARATION AT THE SERUM LABORATORY. Department of the Interior. Bureau of Government Laboratories, Serum Laboratory. By Paul G. Woolley, M.D. Paper. Manila: Bureau of Public Printing. 1904.

*INFORMATION CONCERNING THE MILCH GOATS*, U. S. Department of Agriculture, Bureau of Animal Industry—Bulletin No. 68. By George Fayette Thompson, M.S. Paper. Pp. 82. Washington: Government Printing Office. 1905.

EIGHTEENTH BIENNIAL REPORT of the Trustees, Superintendent and Treasurer of the Illinois Northern Hospital for the Insane at Elgin. July 1, 1904. *Paper.* Pp. 72. Springfield, Ill.: Phillips Bros., State Printers. 1904.

THIRTY-FIRST ANNUAL REPORT OF THE MEDICAL DIRECTOR OF THE CINCINNATI SANITARIUM for the Year Ending November 30, *1904. Paper. Pp. 10. Cincinnati: The Pounsford Sta. Co. 1904.*

TWENTY-FOURTH ANNUAL MEETING of the Hamot Hospital Association, with Reports of Managers and Officers. 1904. Paper. *Pp. 65. Erie, Pa.: Herald Printing & Publishing Co. 1905.*

MERCK'S 1905 MANUAL of the Materia Medica. A Ready-Reference Pocket Book for the Physician and Surgeon. Cloth. Pp. 282. New York: Merck & Co. 1905.

MONTHLY CONSULAR REPORTS. January and February, 1905. Paper. Pp. 324 and 259, respectively. Washington: Government Printing Office. 1905.

REPORT OF ST. JOSEPH'S HOSPITAL of Baltimore, Md., for the Year 1904. Paper. Pp. 32. Baltimore: Thomas & Evans Printing Co. 1905.

THE JOHNS HOPKINS HOSPITAL REPORTS. Volume XII. Paper. Pp. 548. Baltimore: The Johns Hopkins Press. 1904.

ANNUAL REPORT of St. Anthony's Hospital, Denver, Colo., for the year ending 1904. Paper. *Pp.* 32.

DEPARTMENT OF COMMERCE AND LABOR, Bureau of Statistics, Nos. 292 3.

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## NEW PATENTS.

RECENT PATENTS OF INTEREST TO PHYSICIANS.

785692 Vaporizer, George H. Bell, Brooklyn.
785402 Machinery for the manufacture of medicines, James F. *Buckley, Dartford, England.*
785354 Sterilizer, Horace N. Fowler, Philadelphia.
785635 Instrument for shaking down the mercurial columns in clinical thermometers, Jens Peterson, Tacoma, Wash.
785639 Body stretcher, Wm. W. Seidler, Bowie, Texas.
785524 Surgical saline-infusion apparatus, John J. Shea, Beverly, Mass.
785638 Hot-water bottle, Amos J. Scritchfield, Janesville, Wis.
785185 Apparatus for handling sewage and clarifying septic matter, Fred P. Smith, New York.
785391 Massage steamer, John P. Weis, Nyack, N. Y.
785855 Invalid lifter, Henry P. Camp, Maysville, *Ga.*
786004 Preparing dressings for bandages, Max Cohn, Berlin, Germany.
786112 Inhaler, Milton D. *Good, Kansas City,* Mo.
786136 Catamenial bandage, Emma C. Morrison, New York.
785769 Apparatus for purifying septic matter and manipulating *sewage, Fred P. Smith, New York.*
785838 Manufacture of sanitary antiseptic mats, John P. Sutor, Scarsdale, N. Y.
786717 Clinical thermometer case, Oscar G. Bell and R. C. Stofer, *Norwich, N. Y.*
786722 Surgical appliance, Andrew Breslin and J. Lees, Summithill, Pa.
786358 Vaccine case and holder, Elijah M. Houghton, Detroit, Mich.
786457 Speculum, Frank McGinnis, Higginsville, Mo.
786453 Inhaling compound for firemen's use, Wm. M. Mitchell, Louisville, Ky.
786529 Device for applying remedies, Desiderius A. *Stapler,* San [illegible]
786697 [illegible] Wackenhuth, New York.
787083 [illegible]enry L. De Zeng, Philadelphia.
787162 [illegible]m. C. Feely, New York.
787167 Respirator, Wm. G. Gates, Fort Benton, Mont.
787168 Movement-cure apparatus, Marion E. Gibson, Columbus, Ohio.
787170 Instrument for rendering visible the luminous effects produced by radio-active substances, Frederick H. Glew, *London, England.*
786892 Capsule cutter, Ernst Happe, Hamburg, Germany.
786819 Sterilizing milk or other fluids, Corstiaan de Jong, Huize Snippeschrik Amstelveensche Weg, near Amsterdam, Netherlands.
786921 Crutch, Arthur L. Smith, Auburn, N. Y.
787250 Artificial leg, Chester B. Winn, Buffalo, N. Y.

# The Journal of the American Medical Association

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## *Address*

## THE THERAPEUTIC ART.*

OLIVER T. OSBORNE, M.A., M.D.

President of the American Therapeutic Society; Professor of Materia Medica and Therapeutics at Yale.

NEW HAVEN, CONN.

Many societies of internal medicine and many prominent clinicians believe therapeutics to be such an integral part of practice as not to require separate consideration or special study. We naturally take strong and positive exception to this belief, and it is my purpose to present the reason for the inauguration of special societies to discuss and to study this neglected branch of medicine.

The definition of therapeutics involves everything of importance to the patient. All the scientific physiology, etiology, and pathology of the world is of no use to him without their final practical application through the knowledge of therapeutics. I may illustrate this point by the following diagram:

| | | |
|---|---|---|
| Etiology produces<br>Physiology is disturbed by<br>The Pathology is the result of<br>The Symptoms are indications of | The *Disease*=Treatment to | Stop the Etiology.<br>Help the Physiology.<br>Remove the Pathology.<br>Ameliorate the Symptoms. |

It is inane to say to this audience or to the profession that the patient cares nothing for what the physician calls the disease or how he arrives at his decision and diagnosis. To the patient it is only important whether or not the physician can aid in curing his disease and in relieving him of troublesome and imperative symptoms.

I do not think anyone will accuse me of an undue belief in symptomatic treatment, as each and every clinician well knows that it is only the consultant who can ignore the treatment of troublesome symptoms. All successful quackeries succeed because of their ability to relieve symptoms or to cause such mental suggestion as will relieve overtaxed minds, and many a loyal patient is driven to employ quackery by scientific neglect.

It is unnecessary to trace the study of therapeutics from the time of the votive tablets in the temples of the Asclepiadæ to the patriarch Hippocrates, through the anatomists Erasistratus and Herophilus, to the clinicians Celsus and Galen, through the Arabian Avicenna, back to Europe and the wonderful school of Salerno, then to England and Scotland, with their many "isms" and "methods," with the greatest brilliancy in Edinburgh, back to Germany to the practical chemical mystic Paracelsus, through the plodding Hoffmann and brilliant Stahl, to the wonderful Boerhaave, all illuminated by the grand anatomic studies presented by such men as Versalius, Fabricius, Eustachius, Fallopius, Bartholini, Varolius, Sylvius, and the illustrious Malpighi and Morgagni, aided by Cowper, Haver, Glisson, Reil, Harvey, and Brüner, through ever-increasing brilliant French surgery, back to solid English medicine represented by Sydenham, the Hunters, Bright, and the Irishmen Graves and Stokes; again to France for histology, and later to Bouchart, and still later to Pasteur; then to Germany for solidity of pathology, von Recklinghausen, Valdeyer and Virchow, the acme of bacteriology and neglect of therapy, to America for the grand association of all medical knowledge massed together in electric brilliancy, dimmed in places by the worst quackery the world has ever known, flashing in some places by wonderful scientific acumen, sputtering in others by gallery displays, ever urged on by American enterprise, smudged at times by overbearing egotism and self-aggrandizement, but ever advancing in ever-widening brilliancy, with here and there an arc light. All for what? For the advance of the prevention, treatment, and amelioration of disease, i. e., *therapeutics.*

Until recent years the treatment of disease was the most studied branch of medicine. It was first surrounded by mysticism of all kinds, but embodied, even in earlier times, management as well as the actual giving of drugs. All good results, however, were accredited to the ingested or applied remedy, and, like the "lack of sufficient faith" plea of the Christian Scientists for their unsuccessful cases, failure to cure in these times was ascribed to the special devil or special devilishness of the disease. Leaving this period of amulets, talismans, and elaborate mixtures of almost everything available, and the wonderful panaceas and cures by all kinds of mental impression, through the chemical age to the age of wonderful cures by multitudinous dilutions of nothing, and its wonderful success on the mind, we come to Majendi, the Nestor of physiologic investigation of drugs and to scientific medication.

The educated physician of to-day, thanks to the physiologists, the pathologists, the bacteriologists, and the pharmacologists, rarely speaks of "curing," but constantly of "managing" a disease. He leaves the word cure for practitioners of a dogma, for quacks and for nostrum venders. The management of a disease means the care of the diet, hygiene, climate, water, electricity if indicated, and the necessary drugs, and altogether it means "therapeutics."

The subject of therapeutics is the hardest of the practical subjects to master, and it is safe to say that the young graduate in medicine, even after a hospital course, is less prepared in the bedside management of disease than in any other branch of medicine. Hence each medical school should have a special chair of therapeutics held by a clinical man, a specialist in internal medicine. It has been demonstrated that the professor of practice can not spend the necessary amount of time on therapeutics, as his time is completely filled with applied pathology, symptomatology, diagnosis, and the demonstration of signs of disease at the hospital bedside or in the dispensary clinic. In these hospital and dispensary cases, the treatment necessarily is much restricted to general routine and to formulary preparations; the patient is not individualized, and other therapeutic measures are not often available, especially in dispensary cases. The students rarely learn in this manner fine individualized scientific therapy for private practice. In the hospital, the diet, bathing, electricity, massage, drugs and preparations are always given and used according to some one rule which can not well be varied in these institutions to suit an individual taste or need. The graduate, and even the postgraduate, thus starts to practice medicine in his own office very narrowly equipped therapeutically. He has no resources if his first dogmatic treatment has failed or has not been suited to the patient. It may be contended that he then can read up his therapeutics. Yes, but everyone knows how unsatisfactory that is.

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* President's address at the annual meeting of the American Therapeutic Society held in Philadelphia, 1905.

Many, indeed most, books on materia medica contain whole individual theses on each drug, and the reader is convinced after reading one of these articles that that particular drug is the most important one in the pharmacopeia and that it is good for everything. He reads up the next drug, and lo! he finds that drug to do the same, and that Dr. So-and-so of European prominence has found it of wonderful value in this very disease concerning which the reader is seeking information. But neither the European referee nor the author of the materia medica tells how this drug should be administered in this condition, the dose, the frequency, or the preparation to be used. The reader then looks for the preparations of the drug and selects the tincture with a dose ranging from five to thirty drops, too indefinite to be of value, for who shall say that he can not give more to obtain results? Then he re-reads the pharmacologic action to see what is the first symptom to show that the drug has reached its safe limit of use, and behold, the book does not tell what action to look for first. Then he looks through several books to find how the tincture will taste, and learns that it is intensely bitter and acrid. He also refers to the pharmacopeia to ascertain with what it is incompatible while seeking some way to make it palatable. He then bethinks himself of the dispensatory, which tells him that the drug is rarely now used. He then reads two or three books on practice on this disease which he is now studying, and finds his most trusted author tells him this drug was lauded by the European referee some years ago, but that in his hands it has failed utterly. The young physician then goes to his druggist and asks for some of this particular tincture, and the druggist says that he can not remember when he had a call for it, but thinks it may be somewhere on a top shelf. He finds it, blows the dust from the bottle, and then the question is, how can it best be given? The druggist says it is very incompatible and can only be diluted in a certain manner. This is discussed, the prescription written, memorized, and later written at the patient's house and the family is told to have it filled at this particular druggist's, "as others may not have it." The next day the patient says, "Doctor, that new medicine ought to do some good, as it is positively the worst stuff you have ever given me."

Is it any wonder that the young educated practitioner as well as the uneducated one listens to the dulcet tones of the pharmaceutical drummer? The pharmaceutical visitor presents "something new, palatable, it will not interfere with digestion, does not dissolve until it gets into the intestine, has replaced the old depressant, is used by such good men as Dr. X, Dr. Y, and Dr. Z, is all ready for administration, can be ordered in such quantities as you desire, its dose is so much, its only limit in administration would be such a symptom, and it is almost a specific for that disease (the very one the young physician is investigating), and here is the sample."

It is not because each and every practitioner desires to put gain into some pharmaceutical firm's pocket, it is not because each druggist wishes to load his shelves with pharmaceutical and patented preparations that these firms and their preparations are constantly multiplying, but because not enough time is spent in the study of therapeutics in the undergraduate and postgraduate medical schools.

Now, how can this be remedied? As before stated, by a special chair of therapeutics, and the holder of the chair should be well versed in the science of pharmacology, but not necessarily in the laboratory side of it. In fact, the department of laboratory pharmacology should be taught by a purely scientific man and the therapeutic application by a purely practical man, though these two courses should be so interwoven as to constitute one department, a sort of factory of the crude material to the finished product.

Good therapeutics is to the thoroughly equipped physician what the armament is to a war vessel. With the best of methods some students will graduate as protected cruisers only, others as armored cruisers, and others as fully armed battleships, depending on the plan on which the model is made and on the material used in the early construction, but a well-equipped medical school should be able to produce the best medical battleships even if monitors or torpedo boats only are often ordered.

There are various methods of beginning and of completing the therapeutic armament of the medical student, and I will present one which, of course, can be improved on as the plant grows.

An experimental pharmacologic laboratory course should begin early in the second year, after anatomy, histology, physiology and chemistry have been nearly, or quite, mastered. This course should consist of experiments on animals with the most important drugs that are representative of certain pharmacologic actions, such as digitalis for the cardiac tonic group, atropin for the belladonna group, alcohol for the stimulant-excitant group, strychnin for spinal excitant action, chloral for depressant action, ether, chloroform, curare, cocain, pilocarpin, suprarenal extract, ergot, and perhaps others, each graphically demonstrating positive actions on organs, secretions, and nerve functions.

At these experiments, the students should be divided into groups of four or five, each group in turn to be active assistants at the experiments. One student should take notes of conditions as dictated by the instructor, and all should carefully later describe the experiment in their notebooks. At the end of the year these notebooks should be handed to the instructor for his criticism, and the attendance at these experiments and the thoroughness of the written picture should count as a component part of the student's preparation or non-preparation for advance to the third, or junior, year. During this year the students are quizzed on these laboratory experiments.

In the latter half of this second year, a series of twenty-five lectures are given on toxicology. These are largely experimental demonstrations of the effects of poisons on animals and of the controlling power of antidotes, with also graphic demonstrations of poisonous and non-poisonous doses of strong drugs, and what is meant by tolerance. Many medicolegal aspects of poisons which may be of value to the medical man are not only discussed but demonstrated. Notebooks describing these experiments must be kept by the students, and must be handed to the instructor for criticism and marking.

In the last third of this second year, a series of twelve laboratory lectures on pharmacy are given. At these lectures a type of each of the pharmacopeial groups is prepared, and all the various methods of administering drugs are described; also, the meaning of chemical and pharmacal incompatibility is demonstrated. Quizzes follow, and the students must take notes and hand in their notebooks to the instructor for criticism. It has been demonstrated to my satisfaction that this method, combined with what follows, is better for the medical student than a bench pharmacy course.

As soon as this pharmacy course is completed, the introduction to materia medica and prescription writing is begun. Pharmacopeial preparations are discussed, with the advantages of each, and the general rules for doses and dosage are studied. It is taught that no dose is too small to administer if the physician so desires, and the only maximum dose is when the desired physiologic action has been obtained. Hence, to this end the doses of all pharmacopeial classes are put down as that from which some slight non-poisonous but positive effect is to be expected. All preparations are divided into weak and strong, then subdivided into poisonous and non-poisonous, and the doses are thus not difficult to remember. For instance, the tincture of digitalis is a strong preparation of a poisonous drug, and the dose must be a few drops.

Next, the crude drugs are demonstrated in therapeutic classes, in my opinion the only classification of value to the student. I do not believe in chemical, physiologic, atomic, alkaloidal, or any other scientific classification, as they are of no practical use to the practitioner and are remembered only long enough to pass an examination. A classification of drugs is almost hopeless by any method, and is not attempted by some authors, who name them alphabetically. I believe, however, that some classification is advisable, and that which will be of use to the future physician is the best, viz., a therapeutic classification, in which all the drugs that are used to produce a certain therapeutic result are grouped together. For instance, if digitalis does not act well, the young practitioner will immediately remember strophanthus, cactus, convallaria, spartein, caffein, etc. Idiosyncrasy and tolerance are carefully discussed, and prescription writing is begun by personal blackboard instruction, the class benefiting by the corrected individual mistakes.

At the end of this second year a written examination is held, including questions on all materia medica and pharmacologic work done during the year. If the student passes, he enters on his third year in medicine, not a therapeutic nihilist, but well understanding the potency of drugs and able and willing, therefore, to use them with respect.

During the summer vacation, before the beginning of the third year, each student is required to spend fifty hours in the prescription department of some drug store. He thus acquires a definite idea of the appearance, weight, and cost of the various drugs and preparations, learns how to make pills, capsules, ointments, tinctures, etc., and becomes a witness of incompatibilities and incorrect dosage. He sees how readily the druggist can determine whether or not a physician has made a diagnosis, and what is meant by the "gunshot" prescription of the groping physician and the polypharmacy of the physician ignorant of therapy.

At the beginning of the third or junior year the student comes to the study of detailed pharmacology, or the physiologic action of drugs, well prepared and better equipped than most of us were when we graduated. He now, three hours a week for two-thirds of this year, has recitations and explanatory talks on a pharmacologic text-book that gives the physiologic action in groups, i. e., describes in detail the most important drugs, and hangs the other drugs of this class on this hook, briefly stating slight differences in action and use. A materia medica that gives a thesis on each and every drug is not a good one for teaching purposes, though it may be very valuable for reference.

The last third of this year is devoted to lectures on hypodermic medication, rectal injections, transfusions, inunctions, inhalations, plasters, wet dressings, hot and cold applications, hydrotherapy, electricity, massage, organic extracts, diet, climatology, mineral springs, etc. During all this year blackboard work on prescription writing is continued daily. Chemical, pharmacal, and physiologic incompatibilities, mistakes in dosage, polypharmacy, bad treatment and bad Latin are weekly demonstrated by clipped prescriptions from the formulary department of some of our best medical journals. These are written on the blackboard and the students are asked to criticise them. Students so instructed will never depend on the formulary of journals for their therapy.

Toward the end of this year, lectures are given on the history of medicine from the earliest times to the present day, the advance of scientific therapy being specially noted. These students, if they pass their written examination at the end of the year, are then ready for instruction in the applied therapy of the fourth or senior year.

The study of therapeutics of this fourth year is continued by lectures on the management of the various diseases. In these lectures the physiology of the part affected is reviewed, the pathology of the disease is briefly recalled, the symptomatology is referred to as indicative of the degree to which the pathology has advanced and of the amount of the disturbance of the physiology. The etiology is then discussed, and the decks are cleared for the proper understanding of the therapy, namely, to remove the cause of the disease if possible, to correct, or at least not to interfere with, physiology, to remove if possible the pathology, to keep up nutrition, to assist elimination and other normal functions, to give a specific if there is such, to remove or to ameliorate troublesome symptoms, if possible by non-medicinal methods, but if must be with such drugs as by their physiologic action best combat the symptoms.

If drugs are advised, the best preparations, the best method of administration, and the beginning doses are carefully pointed out. It is also emphasized that if a dangerous condition can perhaps be overcome by a strong drug used fearlessly but thoughtfully, it should be used, as a surgeon uses his knife, to save, if possible, a desperate case. The management of convalescence and of incurable diseases is carefully mapped out.

Throughout this senior year two clinical lectures a week are given at which the symptoms and signs of disease are carefully noted and written down, and the most rational possible treatment then given. The patient. on his return to the clinic a week later, is particularly questioned as to each detail of his previous history, and the results of the treatment are written down opposite the treatment given on his previous visit. This graphically shows the mistakes in diagnosis, mistakes in judgment, in the choice of drugs, dose, or management, as well as the success of treatment. Also, reference to the probable prognosis written down at the first visit shows how much was expected of the treatment. The senior students all through this year act as clinical assistants in the dispensary, taking histories and writing prescriptions under dictation.

At the end of this year, after passing a written examination on therapeutics, it would seem that the graduate should know something of this subject.

All this instruction should be under the management of the professor of materia medica and therapeutics. and thus all can be amalgamated into one progressive homogeneous course.

That this ability to practice the art of therapeutics as we understand it need not be lost after graduation, hospitals should more especially individualize their medical cases and should avoid the use of cut-and-dried formulas as much as possible.

Hospitals are preventing the establishment of the metric system almost as fast as the medical schools are inaugurating it. They should use the easy decimal system; translations from one system to the other are hopeless.

Postgraduate schools are more and more meeting the demand of their students that more time be spent on therapeutics, and hence we need not urge them to emphasize this branch of medical need.

Lastly, the therapeutic societies have come to stay, and the greater the number established the more rapid the advance in this neglected science. It is absurd for societies and sections devoted to the practice of medicine to declare that therapeutics is a branch and part of medicine. No one denies it, but for the last twenty years it has been a neglected part, and it should now be given special study and special discussion. Where would the practical societies stand without the work of the pathologists? On the other hand, how helpless would the trained diagnostician be, how would the patient fare, without the work of the pharmacologist and the study of rational therapy? Societies devoted to the study of therapeutics will do much to prevent the phrase "how do you treat pneumonia?" and abolish the ridiculous, often absurd, often dangerous advice given in the medieval formulary departments of our medical journals. Some of the worst errors in prescriptions are copied from journal to journal because some man of renown was supposed to have some time recommended that particular prescription, though he may not be guilty of the mistakes in it.

## *Original Articles*

# THE THERAPEUTIC USE OF *X*-RAYS.

## THREE YEARS AFTER.*

WILLIAM ALLEN PUSEY, A.M., M.D.
CHICAGO.

In March, 1900,[1] in November, 1900,[2] and in February, 1902,[3] I read papers before this society on the therapeutic use of *x*-rays. The first paper was a consideration of their use in skin diseases; the second, a report and a demonstration of lupus successfully treated with *x*-rays; the third, a report and a demonstration of a number of cases of various kinds showing the results of exposures to *x*-rays. The cases reported included lupus, epithelioma, senile keratosis, recurrent carcinoma of the breast, deep-seated carcinoma of the head and neck, sarcoma, keloid, pseudoleukemia and leukemia. In another report[4] the use of this agent in various forms of dermatoses was considered. Three years now have passed since the last of these reports, and I venture to hope that it will not be unprofitable nor without interest to review the subject and to undertake to estimate from the results the therapeutic limitations and possibilities of this agent. I fear this paper will appear unduly personal, since I am only undertaking to review my own experience, but for this I offer the apology that one's personal experience is that which he can best review. I hope it will not seem that I am overlooking the work of the many men who have made valuable contributions to the subjects on which I am giving my own experience.

So far as the use of *x*-rays in cutaneous diseases is concerned, that can be quickly summarized, for there is pretty general unanimity in the experience of dermatologists.

### HYPERTRICHOSIS.

The use of the *x*-rays for the permanent removal of hair has not equaled my early expectations. In my experience I should say that they have given satisfactory results in about 50 per cent. of the cases treated, but to get these results has required long and painstaking treatment, and in some cases even this has failed. This application is so beset with difficulties that I do not undertake it unless the conditions are very urgent. Hypertrichosis is the one condition in which my experience with *x*-rays has been less satisfactory than I anticipated.

### SYCOSIS AND TINEA.

In sycosis and tinea sycosis the results with *x*-rays are exceedingly satisfactory and in some intractable cases they give results that are obtainable by no other method. The results are permanent. Some of my cases have been well more than three years.

### ACNE.

In my experience acne offers one of the best illustrations of the value of *x*-rays. It is little short of marvelous to see the improvement produced in most obstinate acnes from careful *x*-ray exposures. I have treated a large number of acnes by *x*-rays, and the results in most cases have been good. I have occasionally had results that were not completely successful, even after long-continued treatment, these partial failures being attributable, I believe, to failure to get enough $x$-ray effect, but I believe I can say that I have never failed to see an improvement take place after a reasonably long period of treatment, and in many cases I have seen results which no other method can approximate.

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* Read before Chicago Medical Society.

1. Journal of Cut. and Genito-Urinary Dis., July, 1900.
2. The Journal A. M. A., Dec. 8, 1900.
3. Ibid., April 12, 1902.
4. American Dermatological Association, May 31, 1901.

As to the permanency of the results, the patient may occasionally have the recurrence of a lesion, but in some cases not even this has taken place. When relapses have occurred, they have shown themselves easily amenable to treatment. The results are attributable, I believe, chiefly to the decrease in the activity and size of the sebaceous glands produced by the $x$-rays. In these cases of acne, the gaping follicles decrease in size, comedones disappear, oiliness is diminished, and the appearance and texture of the skin are greatly improved. In many cases the improvement is quite remarkable.

Of course, the application of $x$-rays for acne has to be carried out with great care, and it should not be undertaken until the operator knows with reasonable assurance the $x$-ray effect he is going to produce by his exposures. The objection to this method is that, if one proceeds safely, the treatment extends over a considerable period of time, perhaps several months. Unfavorable after-effects on the skin, which have been urged as a possible danger here, I have not seen, and I believe the treatment can be carried out without any danger, immediate or remote.

The favorable results in acne I have seen in all types of the disease; in simple juvenile acnes in healthy subjects and in the most deep-seated indurated acnes in patients who are out of health. Of course, the method has its greatest usefulness in the deep-seated, severe and otherwise intractable cases of acne indurata.

### ROSACEA.

In rosacea the results have been quite as satisfactory as in acne. Not only can the folliculitis be controlled, but in some of my cases I have been surprised to see the nose become of normal color and contour again; and, what was more surprising, dilated blood vessels disappear. These cases show only a very slight tendency to relapse; in some cases that I have had under long observation and treatment the results have been permanent. I had one case of as ugly rosacea as one often meets, which has been practically well for three years, and without any treatment has not had a relapse in the last two years.

### HYPERIDROSIS.

From the effect of $x$-rays on the appendages of the skin I suggested[4] the theoretical possibility of the value of $x$-rays in the treatment of excessive localized sweating. The value of the agent in this connection has been confirmed by the experience of several operators.

### INFLAMMATORY DERMATOSES.

The use of $x$-rays in chronic inflammatory dermatoses has proved of much value. In chronic indurated eczema, my experience, like that of numerous others, testifies to their value. They have been particularly useful in the chronic intractable eczemas of the hands. I have also had satisfactory results from their use in chronic indurated eczema of other parts and in acute exacerbations of old eczemas. Their effect in relieving itching in these cases is frequently quite marked, but sometimes fails. Their effect is not limited to the relief of itching, but there is a positive influence on the metabolism of the affected tissues that frequently causes the complete disappearance of the disease. I have also seen the rays fail to produce any appreciable effect on some cases of eczema. I have in mind particularly two cases of that distressing form of eczema of the face, which we call neurotic, that is seen occasionally in people beyond middle life. The only two cases of this sort that I have had the opportunity of treating thoroughly with $x$-rays have proved totally rebellious to them, as they have to everything else.

In the subacute or chronic inflammatory diseases of the skin, accompanied by a good deal of scaling, such as psoriasis and lichen planus, the effect of the rays is very beneficial. Their application is free from the disagreeable circumstances of the usual local treatment of these conditions, and in some cases they do more than can be done by other means. But here their value is not unique, for we have other satisfactory methods of treating these conditions.

### LUPUS ERYTHEMATOSUS.

The results in lupus erythematosus do not show that $x$-rays furnish the much-needed effective method of treating that extremely uncertain affection. Decided improvement may take place from their use, but one can offer no assurance of a satisfactory result. They are inferior, in my experience, to the application of the high-frequency current.

### PRURITUS.

In pruritus ani and vulvæ I have seen the benefit from the use of $x$-rays that other observers have reported. The temporary relief of itching has been very common in my experience, but I am not sure that any case has been permanently cured. The relief that can be given to these miserable sufferers, however, fully warrants the use of the treatment. In the indurated dermatitis that frequently accompanies these cases, I have seen the same improvement as in eczemas of similar type elsewhere.

### PIGMENTED AND VASCULAR NEVI.

In both pigmented and flat vascular nevi my experience with a few cases has led me to believe that $x$-rays offer a method of treatment of distinct value. The most satisfactory result in pigmented nevi has been in the case of the daughter of a physician who had a hairy, pigmented nevus, involving the entire right side of the forehead and temple from the eyebrow to the scalp. The skin was black, had a thick, horny layer, and was covered with a growth of black hair, quite as heavy as that on the scalp, with which it was continuous. By careful treatment all the hair was removed and the skin of the surface made almost normal in appearance. It is slightly darker than the adjacent skin, but is smooth and soft and of good color. We succeeded in this case in getting an eyebrow and a hairy border of the scalp of normal contour, so that practically the deformity was entirely obliterated. This patient has now been well for two and one-half years. I am sure that such a result could not have been obtained by any other method. In a few other cases I have been able almost to obliterate similar but smaller nevi.

In the only two vascular nevi I have treated I have been able to cause improvement which was satisfactory to the patients. In neither of these cases has the red color been entirely removed, but it has been converted from a dark conspicuous red to a light, pinkish color that is very much less obtrusive; and in doing this the texture of the skin has been improved, so that the skin over the surface of the nevus is smooth and soft. There can be no doubt of the positive improvement in these cases, because small outlying areas that were left as checks to determine accurately any change of color remained much darker. I do not mean to suggest *x*-rays as a method entirely satisfactory in these cases, but until some more satisfactory method of treating them is devised than we now have I believe this method has here a field of usefulness.

### KELOID AND SCARS.

In my demonstration three years ago I showed a case in which a large keloid on the arm had been made to disappear under *x*-ray treatment. There had been no recurrence of this keloid two years after, when I last saw the patient. I have treated successfully several typical keloids, most of them on the chests of women. The keloids flattened down into soft, pliable, white scars, and the pain which exists in some of them completely disappears. Such cases seem to leave no room for doubt that keloid can be cured by this method—which, I believe, is more than can be said for any other. *X*-rays also offer an eligible method of treatment of other bandlike scars.

### LUPUS VULGARIS.

There is unanimity of opinion among dermatologists as to the value of *x*-rays in lupus vulgaris, and my experience corroborates this. I have seen but one case of lupus vulgaris which failed to yield satisfactorily to the rays, and that was a case of lupus of the face extending deep into the tissues, which had recurred after a plastic operation. In my experience, lupus has yielded readily to *x*-rays, and when the treatment could be carried out satisfactorily the results have been all that could be hoped for. As to the permanency of the results, the patients whom I showed symptomatically cured at the meeting of this society four years and three years ago have had no recurrences. I have had some failures in lupus vulgaris, but they were failures which, I believe, may be reasonably attributed to the fact that it was impossible, on account of the patients, to carry out the treatments satisfactorily.

There is surely no other method of treating lupus vulgaris that stands in the same class with *x*-rays, except Finsen's method. The results from Finsen's method are as good, but I believe, even in my limited experience with lupus vulgaris, that I can duplicate any of the results of Finsen's method. *X*-rays have certain very decided advantages over Finsen's method. The results are more rapidly obtained; the treatment is applicable to mucous membranes; it will reach lesions much more deeply situated; it does not require the aid of supplementary painful, mechanical or caustic methods of treatment; there is no discomfort from the application of pressure to the surface to drive out blood; and the treatment can be applied at one sitting to large areas, while in Finsen's method it is impossible to treat more than about one square centimeter of diseased tissue at one time. I have treated some cases of widely disseminated and very extensive lupus in which treatment by Finsen's method would have been unending.

### TUBERCULAR GLANDS.

I have had a somewhat extensive experience in the treatment of tubercular glands, especially those in the neck. My experience [illegible] has been variable. In the treatment of primary [illegible] adenitis without involvement of the skin, in [illegible] I have been able to reduce the size of the [illegible] by long-continued treatment to cause them to decrease to the point of disappearance. In other cases, however, there has not been much improvement. In the treatment of cervical adenitis, in which there was already involvement of the skin, my results have been more positive. In nearly all cases it has been possible to cause healing of the sinuses and distinct improvement in the condition. A case referred to me three years ago by Dr. A. J. Ochsner, which is about the most severe of this sort that I have treated, illustrates the extent of the results that can be obtained. This patient had had repeated operations, extending over several years, for tubercular glands on both sides of the neck and in both axillæ. Operation after operation had been done until all the tissue that could be spared had been taken out. The disease, however, had recurred in all four localities. There were numerous sinuses and the skin and the subcutaneous tissue were thickened and indurated and unhealthy. Under *x*-ray treatment given twice a week for three months the sinuses all healed, the tissues became healthy, and she has remained well now for three years, practically without further treatment.

### TUBERCULAR JOINTS.

My experience in tubercular joints has not been extensive. In some cases the rays have not appreciably affected the condition. In a few cases, however, there seems to be little doubt of very positive benefit. I have treated a very severe case of this sort during the last year for Dr. J. B. Murphy. In this patient, a young man, there were tubercular lesions of many joints—the feet, the ankles, the knees, the wrists—some of them with involvement of the skin, some of them without. Under *x*-ray exposures nearly all the discharging lesions have healed, the patient has become so that he can use his joints without pain, the swelling has very greatly decreased and he has gained forty pounds in weight. From being an invalid on crutches and almost completely confined to bed he has got on his feet again, is able to exercise without discomfort, and has been able to go to New Mexico alone to spend the winter. How much of this is due to *x*-rays may be open to question, but it is certain that during the time that he was subjected to the exposures his condition vastly improved without change in his surroundings or in his other treatment.

### ABDOMINAL TUBERCULOSIS.

In one case of abdominal tuberculosis, which I have treated during the last two years in conjunction with a surgeon of Chicago, there has been improvement, which has been attributed by the surgeon very largely to *x*-rays. In his opinion, I believe, it rendered possible an operation for the relief of an intestinal obstruction, which has been followed by great improvement of the patient. I have no other cases of this sort that have had extended treatment, but on theoretical grounds and from my small experience I believe the method is worthy of careful trial, not, however, at the expense of omitting other means for combating the condition.

### DEEP SINUS.

I have treated numerous deep sinuses of various sorts with *x*-rays, usually without radical relief. In one abdominal sinus, however, the result was surprising. This was in a young woman, in whom a laparotomy had been done for pelvic abscess. A sinus resulted which resisted all attempts at relief. When she came under treatment she had a sinus between the umbilicus and the pubis, from which there was a very abundant discharge of foul pus. She was weak and greatly emaciated. Under *x*-ray exposures, extending over a period of four months, there was a rapid diminution in the discharge until it entirely disappeared, and a month after stopping treatment, in June, 1903, the sinus permanently healed. The patient, a woman of large frame, gained fifty pounds in the next few months.

### BLASTOMYCOSIS.

In blastomycosis my experience with *x*-rays, extending over a half-dozen cases, has been uniformly favorable. The results have been radical in all except one case, in which the patient would not continue treatment. In all of the cases *x*-ray treatment has been combined with potassium iodid in from 10 to 20 grain doses, *t. i. d.*, and my experience leads me to agree with others that the use of *x*-rays in combination with potassium iodid offers an ideal method of treating cutaneous blastomycosis. In addition to the treatment of demonstrated cases of blastomycosis I have treated successfully by this method two large suppurating, papillomatous tumors, one over the knee, one on the thigh. Both patients were women and both lesions had resisted for at least two years other methods of treatment. The first of these patients, a middle-aged woman, was on crutches and the condition was serious enough to warrant the consideration of amputation of the leg. The use of the leg was entirely regained and there has been no recurrence in two and one-half years.

### ACTINOMYCOSIS.

My experience in actinomycosis has been confined to one case in the jaw, in which ulceration had not occurred and the diagnosis was clinical. The patient was referred to me by Dr. A. J. Ochsner. In this case *x*-ray exposures, combined with 20 grains of potassium iodid, *t. i. d.*, was followed by complete and permanent resolution in a few weeks.

I have another case in which the diagnosis lay between actinomycosis and sarcoma, in which the result was remarkable. This patient was referred to me by Dr. L. L. McArthur in September, 1902. Six months previously the patient had noticed a painful tumor in the left side of the breast which at first grew slowly, but then rapidly extended. At the time he was referred to me there was a large tumor occupying the whole front of the chest between the axillary lines and from the lower end of the sternum to the clavicles. It was densely hard, immovable, of purplish color, and involved the skin. Over the center the tumor showed a few small ulcerating points. There were indurated glands in both axillæ. In Dr. McArthur's opinion, it was a case of sarcoma, and the patient had had a piece of tissue excised at the hospital for microscopic examination. After it was too late to get another specimen it was discovered that this was lost, and the diagnosis was never confirmed microscopically. In a little over a month of *x*-ray exposures this mass, which was over a foot in diameter and three inches thick at the center, completely disappeared and with it the axillary glands. He had no other treatment besides *x*-rays. His cachexia disappeared and his health was completely restored so that he was able to return to hard labor. There has been no recurrence, now in over two years. I have seen nothing in the use of *x*-rays more striking than the result in this case.

### CUTANEOUS CARCINOMA.

My experience with epitheliomas now covers a large number of cases, including lesions of all descriptions, from the smallest epitheliomas to larger lesions than I have seen anywhere described, and the results which have been obtained have given me the utmost confidence in the use of the *x*-rays in this condition. I am almost prepared to say that I believe that any cutaneous carcinoma can be cured with *x*-rays. When I say cutaneous carcinoma I mean to exclude metastases or extensions deep into the underlying structures; but this exclusion does not limit the application of this method to cases that are easily amenable to surgical methods, because there are still left certain lesions which from their extent are beyond surgical intervention, and numerous other lesions in which surgical treatment is unsatisfactory or undesirable, if not impossible. As to the class of epitheliomas which are suitable for *x*-ray exposures, I believe it may be said broadly that all epitheliomas are suitable for this method of treatment except those cases in which conservative surgery requires the removal of contiguous glands. For epitheliomas in certain localities the *x*-rays offer particular advantages on account of the favorable character of scars that result. This applies especially to epitheliomas on the nose, of which I have had many cases, to epitheliomas on the ears, of which I have had several cases, and especially to epitheliomas on the eyelids.

I have treated by this method several cases of epithelioma on the lower lid in which there was no involvement of the deeper tissues of the orbit, and in all of these, except one in which the patient would not allow sufficient treatment, a successful result has been obtained without interfering with the function of the lid or in any way affecting the eye. The unsuccessful case shows improvement that has remained permanent for two years. There has not been any relapse in any of the others and one has been well two and a half years.

Among my cases of epithelioma on the nose are a few successful cases of very extensive epitheliomas, involving the tip and the alæ of the nose and the contiguous parts of the cheek, which had failed of relief from operation or in which surgery offered no prospect of relief except by extensive and very mutilating operations. One of these cases is among those I demonstrated three years ago symptomatically cured, and this patient remains well now.

There is a type of epithelioma of the nose which we fortunately see rarely, which is situated deep in the tissues and is of very rapid growth. When patients with this type of lesion come under observation the nose is usually almost completely destroyed. There are large nodular masses at the border which melt away rapidly with great destruction of the tissues. I mention this type of lesion because in two cases of this sort that I have seen, one of which, I thought, had adequate treatment, *x*-rays did not materially check the course of the disease. Likewise, I have failed of successful results in several extensive carcinomas of the orbit. I refer now to the very destructive lesions which we sometimes see that involve the whole orbit and in time leave an enormous cavity. Very great improvement can be made in these cases and the course of the disease can be almost completely checked, but I have not seen radical relief. I have had one very interesting case of this sort in a middle-aged man who had only one eye and had a carcinoma involving that one. The carcinoma had extended from the inner canthus deep into the orbit and involved the contiguous bony structures. This patient has been under my care at intervals for two years. A year ago Dr. Casey Wood, at my suggestion, removed as much of the carcinoma as was possible without destroying the eye, and during the two years I have given him *x*-ray treatment as vigorously as possible. There has been no superficial ulceration and, in view of the previous history of rapid growth and the course of such cases ordinarily, there seems to be no doubt that in this case we have succeeded in preserving for him a useful eye for two years. How much longer this result may be maintained I do not know, but he is apparently in as good condition now as he was two years ago.

I have failed in two deep, rapidly destructive lesions involving the ear and the surrounding parts. Neither of these patients was well situated for treatment, but I am inclined to believe that I would have failed under any circumstances. These cases about cover the failures which I have had in adequately treated cases of epithelioma without metastasis.

I have had one or two surprising experiences in having epitheliomas get well under very vigorous exposures after I had practically decided that the treatment was a failure. This, I believe, was solely due to unusual resistance of the tissues to the influence of *x*-rays. I have recently had a case of epithelioma of the forehead of the size of a half dollar, which was referred to me by Dr. Leonard St. John, in which I treated the patient for two months without effect; indeed, the lesion spread under the exposures. The failure was so complete that I went to Dr. St. John and said that I was willing to admit a failure and to have him take the patient for operation. He was generous enough, however, to leave the case to my further care. I then applied *x*-rays for two weeks. vigorously enough, I am sure, to cause a severe burn in an individual of ordinary susceptibility. The result was that in six weeks I had a smooth, perfectly healthy-looking scar. I think there is no doubt that the explanation of the intractability of this lesion was the unusual tolerance to *x*-rays of this patient, not of the tissues of the tumor, but of all the patient's tissues, because the healthy surroundng skin reacted only very slightly under severe exposures.

### EPITHELIOMA OF THE LOWER LIP.

Epitheliomas of the lower lip, in view of the danger of the involvement of the submaxillary glands, should be attacked by *x*-rays or by any other method which does not involve removing the contiguous glands, with extreme caution. I have treated 20 cases of epithelioma of the lower lip, most of which were referred to me by surgeons, and in all of which the treatment with *x*-rays was decided on after operation had been considered. Except one case, these were regarded as favorable cases for *x*-ray treatment; that is, they were of the superficial type of epitheliomas. Most of them were cases that involved a large surface of the lip but did not extend deeply. In 19 of the 20 cases there was no palpable involvement of the glands. It so happens that 19 of the cases gave healthy scars. Ten of them have been well for more than a year, 9 of them were treated during the last year. One case was that of an old man who had positively declined operation, and who had a large submental and a large submaxillary gland palpable when the treatment began, and that case was a failure.

All of my epitheliomas of the lower lip have been in men. I have treated only three epitheliomas of the upper lip and, curiously enough, two of the three were in women. In two cases I obtained a healthy scar. In the third, a very old woman with a deep-seated nodular recurrence after operation, there was healing but with a suspicious scar which after a year without treatment, although this was advised, broke down, and at present there is a recurrence.

Unquestionably, *x*-rays do not offer so radical a method of treating epitheliomas of the lip as does the operation which includes the removal of the submaxillary glands; but, if the removal of these glands is not to be done—and in many cases for various good reasons this is not the practice—all can be done by *x*-rays that can be done by any other method. I do not want to be understood as advocating the substitution of *x*-rays for radical operation in epithelioma of the lip, but only as saying that the method is efficacious on the lesions of the lip itself and is entitled to consideration in those cases in which the radical operation is not thought to be necessary or is for any reason impracticable.

As regards the treatment of epitheliomas covering large surfaces, *x*-rays offer a method of successful treatment for some cases which are so extensive that operation is out of the question. One such case I demonstrated three years ago symptomatically cured, and at the time of this patient's death—from acute illness—18 months later, there was no recurrence except a nodule in the skin the size of half a wheat grain. The possibilities of the method in cases of this sort are shown in a patient, referred to me by Dr. E. M. Marquardt, in which there was a rodent ulcer involving the entire forehead, extending down over the left eyebrow, involving both lids of the left eye, the skin of the nose almost down to the tip, and the upper right eyelid. Under *x*-ray treatment this promptly got well and, except for a pea-sized recurrence, has remained so for two and a half years. I have at present an old woman who, when treatment was begun, had an epithelioma on the middle of her back larger than a hand and excavated to the depth of an inch at the center. At present this is reduced to an abraded surface the size of three fingers and only slightly depressed. The tissue is free from evidence of carcinoma, but epidermis has not yet formed over the center of the lesion. These are cases in which nothing else offers prospect of relief.

As to the permanency of the results, I presented three years ago, 7 epitheliomas symptomatically cured with *x*-rays. Of these 1 patient, who had an epithelioma larger than a hand, died 18 months later from an acute illness, with a recurrence half the size of a wheat grain. The other patients are well to-day. Four of them have had no recurrences, 2 of them have had minute recurrences which were not difficult to get rid of. Two of the cases were simple, small lesions which were not difficult to handle by any method; the other 5 cases were most of them extensive and all of them had failed of relief by previous treatment. In all of these cases, of course. there had been a microscopic diagnosis. My experience as to permanency in my subsequent cases has been quite as good. Where I have obtained a scar satisfactory to myself, recurrences practically have never taken place. Occasionally there have been small recurrences around the border of the lesions, but, as a rule, these have been of no gravity and have been readily handled. I am sure the cases will bear fair comparison as regards permanency of results with any similar number of cases treated by any other method.

One of the early objections to the use of *x*-rays in the treatment of epitheliomas was the length of time required for treatment. Occasionally now one finds a patient who is very insensitive to $x$-rays and in whom it requires numerous exposures to produce the necessary effect; in most cases, however, all the $x$-ray treatment necessary can be given in a few exposures. I have had numerous cases which have had only from three to five exposures, and in which the entire treatment to the point of production of a healthy scar did not extend over three weeks. A minor objection is that occasionally patients are quite susceptible and a dermatitis occurs which leaves an abraded surface that takes, according to its size, from three to six weeks to heal. I have never, however, seen any of these burns that gave more trouble than moderate tenderness and the slight inconvenience arising from an abrasion of the epidermis. I have never had a sloughing $x$-ray burn in an epithelioma, although I have thought that I was running the risk of it many times.

### SENILE KERATOSES AND LEUCOPLAKIA.

In connection with epithelioma it seems that a word should be said about the treatment of two lesions which are so very frequently the forerunners of epithelioma, senile keratoses and leucoplakia buccalis. I have treated many senile keratoses with $x$-rays, some of which were not inflamed, and others which had irritated bases and presented the early stage of epithelioma. In some of my cases the lesions have been very numerous over the face, or over the face and hands. Senile keratoses can be made to disappear almost invariably. As there is no other satisfactory method of treating these lesions, and as they are so frequently the precursors of rodent ulcers, a successful method of treating them is no small gain.

I have not been nearly so successful in leucoplakia buccalis. I have succeeded in some cases in clearing off these patches, but I have also failed in some cases.

### CARCINOMAS IN THE NECK.

I have treated many metastases of carcinoma in the neck arising from carcinomas in the mouth or on the lip. My experience with $x$-rays is that they are as futile as every other method in the treatment of the deep carcinomas in the neck. I have had two cases, however, in which there was a development of carcinoma in the scars after operations on the neck for carcinoma, which have been successful. In one of these cases there was a recurrent nodule in the scar on the lip and small nodules in the scars under the chin where glands had been removed; a third operation had been advised by a prominent Chicago surgeon. In the other, a similar case, there was development of small nodules in the scar. Both of these patients have been well now more than two years. In all my other cases the ultimate result has been failure. There has been distinct benefit in some of these cases in the way of relieving pain and of getting rid of much carcinomatous tissue, but in some of the cases there has not been even this.

### MIXED TUMORS OF THE PAROTID.

During the last year I have had the opportunity of treating several cases of these curious, and clinically only slightly malignant, so-called mixed tumors of the parotid. All the cases are still under treatment, several of them showing decided diminution in the size of the tumor. In one such case, referred to me by Dr. L. L. McArthur, there has been almost complete disappearance of the tumor which had caused a very pronounced swelling over the parotid and had been gradually growing for several years.

### RECURRENT CARCINOMA OF THE BREAST.

I have treated a large number of recurrent carcinomas of the breast, almost every one of which has been referred to me by a surgeon, and all of which were hopeless of other methods of relief. The results have been so surprising occasionally that I have not refused to treat any case unless there was already well-developed evidence of mediastinal or pulmonary involvement or of deep-seated distant metastases. It goes without saying that in such a desperate class of cases I have had failure after failure, and yet in many of the ultimate failures the treatment has been well worth while in healing ulcerations on the chest wall and in similar palliative ways. I am sure also that there can be no doubt that in many of these cases the course of the disease has been greatly checked and the patients' lives have been prolonged in comparative comfort for many months, or even for a year or more.

This statement is notably illustrated in one of the cases which I demonstrated three years ago in which a very extensive recurrence on the chest wall had been gotten rid of between Nov. 1, 1901, and March 1, 1902. This patient had a year of good health and comfort with only a slight recurrence, which yielded to a few $x$-ray exposures, the only treatment that she had during this time. The disease then recurred again, she declined to return for any further treatment and died after six months. Many similar cases could be cited.

In a good many cases results have been obtained which have proved permanent to the present time. Of the three cases of recurrent carcinoma of the breast which I presented three years ago, one, the patient last referred to, died eighteen months later of carcinoma of the lung; the second case died fifteen months later of carcinoma of the spine without recurrence in the chest wall. The third case remains well to-day. This patient had had two operations and on the third recurrence consulted Dr. Ochsner, who refused to operate further and referred her to me in September, 1901. She then had two ulcers the size of a fifty-cent piece in the scar surrounded by an indurated border of carcinoma. When her case was reported in February, 1902, Dr. Ochsner, in referring to the case, said that in his opinion she would have died before then had she not had $x$-ray treatment. She has never had another recurrence. She has had several series of $x$-ray exposures since that time as a precaution, but has now had no treatment for over a year, and she has remained symptomatically cured for three years. She has been in good health during all this time and has been able to earn her living. I have a good many similar cases with symptomatic cures that have persisted for from one to two and a half years.

In April, 1902, a woman, aged 46, was referred to me by Dr. Brannon of Manhattan, Ill. She had had a slowly-growing carcinoma which had been removed in September, 1901, and when she came for $x$-ray exposures there were nodules along the course of the scar, a large mass of fused glands in the axilla, a similar but smaller mass in the supraclavicular space, and slight edema of the arm. Physically she was much reduced. Under $x$-ray exposures the recurrence in the scar entirely disappeared, then the supraclavicular glands disappeared, and finally the axillary mass. The edema of the arm disappeared and she was restored to her normal health. She has been symptomatically cured for two and a half years.

On Nov. 19, 1902, Dr. Frank Bil

me a woman, aged 67, with the following note: "Dr. Fenger removed the left breast Nov. 28, 1901. There is, as you will see, infiltration again above the clavicle. There is some dyspnea, but I can find no physical evidence of involvement of the lung or heart. There may be, of course, mediastinal disease now." Under $x$-ray exposures, vigorously given, the puffiness of the supraclavicular space subsided, and the supraclavicular glands, while not disappearing, diminished and softened and became hardly palpable. This patient has had no $x$-ray treatment for twenty-two months, and has shown no evidence of spread of the disease. In view of the utter hopelessness and progressive course of such cases, these results are certainly of interest.

### PRIMARY CARCINOMA OF THE BREAST.

Of course, $x$-rays as a method of treatment of primary carcinoma of the breast should never be undertaken when operation is feasible; but that something can be done in primary carcinoma of the breast is shown by postmortems that were made in two patients of mine who had been treated in this way. One case was a large primary carcinoma of the breast with involvement of the axillary glands and with spinal involvement at the time the treatment was begun, and treatment was only given on the family's insistence. The patient was referred to me by Dr. Wyllis Andrews. She had $x$-rays to the point of producing a dermatitis before she died. Postmortem, the breast was found a mass of connective tissue with little gland tissue and no carcinoma tissue left. The axillary glands had almost entirely disappeared and there was increase of connective tissue in their place. Another case of primary carcinoma of the breast was referred to me by Dr. J. B. Murphy. Three months after beginning treatment, Dr. Murphy wrote me concerning her: "The carcinoma of the breast has entirely disappeared." She died a short time afterward from acute illness, and postmortem it was found by Dr. W. A. Evans that the tumor had been converted into a small fibrous mass about the diameter and two-thirds the length of an index finger. The axillary glands had not been affected by the $x$-rays.

These findings warrant the attempt to treat by $x$-rays carcinomas of the breast in which, for any reasons, operation is out of the question; but they certainly do not warrant any one in advising $x$-rays as a substitute for operation.

Up to January, 1904, I had used $x$-rays in 15 cases of primary carcinoma of the breast. Of these 15 patients, 6 have died. Every one of these 6 was in an advanced stage of carcinoma, and absolutely hopeless; they were referred to me by men like Dr. Fenger, Dr. Wyllis Andrews, Dr. Murphy, and Dr. Ochsner. Seven of the remaining 9 are living, from one to three years after they came under treatment, and if the disease is still present, its extent has diminished very greatly and it has shown no tendency to increase. These were all comparatively favorable cases; none of them had ulcerated, but nearly all of them showed large tumors in the breast with retraction of the nipple and with involvement of the axillary glands. Concerning the diagnosis in these cases, I believe there can be no room for doubt. They presented characteristic pictures, and all of them had been pronounced carcinomas by competent men.

I do not know whether the two remaining patients are alive. These two were both old women with extensive ulcerating carcinomas, and there seemed no reason to hope for more than palliation. In one case the ulceration was entirely healed and in both cases there was certainly decided improvement of the condition. Both the patients were living when I last heard from them, more than a year after they came under my observation.

I certainly do not believe that $x$-rays are entitled to any consideration as a reliable method for treating primary carcinoma of the breast, but, if operation is out of the question, I believe considerable hope of benefit, even of indefinitely prolonged relief, can be offered from $x$-rays.

### CARCINOMA OF THE ABDOMEN AND OF THE PELVIS.

In carcinomas of the abdomen and of the pelvis, I have little that is definite to present. In carcinomas in the abdomen I have never convinced myself that anything has been done. In one case of carcinoma of the chest there has seemed to be very marked palliation from the use of $x$-rays. This was a case of carcinoma of the esophagus referred to me from Johns Hopkins by Dr. Halsted. Under $x$-ray treatment there was great improvement which was maintained for over a year. Then the tumor began to increase and killed the patient twenty months after he came under treatment.

I have treated several cases of recurrent carcinoma in the pelvis, usually after carcinoma of the uterus. I believe I correctly represent Dr. H. T. Byford and Dr. E. C. Dudley when I say that they thought there was considerable palliation in cases, which they observed, in the way of preventing vaginal involvement and perhaps in retarding the course of the disease. One such patient, referred to me by Dr. Byford, lived for one year in perfect comfort; her vaginal discharge and hemorrhage were quickly relieved and never returned; she was able to lead her usual life without inconvenience, and died within a week after the onset of her first acute symptoms. In another case, referred to me by Dr. Dudley, in which there was an enormous carcinoma extending well above the pelvis, the patient lived for one year without ever having a vaginal discharge and died within three days after she became bedridden.

The most radical improvement in any pelvic carcinoma that I have seen is in the case of a woman, referred to me by a Chicago surgeon. In October, 1903, after a history of hemorrhage beginning six months previously, the uterus and ovaries were removed for carcinoma. New nodules soon appeared in the scar which were treated assiduously after the usual methods, but continued to grow. At the time she came to me, on April 30, 1904, at the site of the vaginal scar there was a nodular mass about the size of a walnut, so large that it could not be entirely taken in by a Ferguson speculum. It was ulcerating and bleeding. In three weeks under $x$-ray exposures it had flattened down completely and there remained an ulcer the size of a ten-cent piece. In two months this had healed and left a healthy-looking scar. Since that time the patient has had one series of prophylactic $x$-ray exposures and she has remained well now for ten months. The vagina is perfectly clean and the scar is soft, without induration, and is healthy looking. The patient now weighs 175 pounds and is, as far as she knows, perfectly well.

### SARCOMA.

My experience in sarcoma, of course, is not nearly so large as that in carcinoma, but it includes a considerable number of cases. The experience indicates that sarcomas are affected by $x$-rays in practically the same way as carcinomas. I am inclined to believe that they are affected somewhat more readily. As the results, on the whole, are similar to those in carcinomas of similar extent, I will not burden this already overlong paper by an analysis of the cases. In general, it may be said that, as we rarely get sarcomas without the presence already of metastases, the results have been less favorable. Much can be done in way of palliation in many cases and symptomatic cures can be obtained in some.

### PROPHYLACTIC USE OF X-RAYS AFTER OPERATION FOR MALIGNANT DISEASES.

The number of cases in which I have been able to carry out this procedure, while considerable, is not sufficient to allow of definite findings, and, as I have analyzed them elsewhere, I will not take the time to consider them here. This use of *x*-rays, I believe, is logical, and, as far as my experience extends, its utility is strongly confirmed by the results. I have a good many cases after operations for carcinoma and some after operations for sarcoma in which there are strong reasons for believing that the use of *x*-rays has thus far saved the patients. A few of the patients had had repeated operations for recurrences, and under *x*-rays have remained well now for a much longer time than any of the intervals between their previous recurrences. In a very few, the most desperate cases of this sort that I have treated, recurrences have taken place in spite of *x*-rays, but I believe I am correctly stating the impressions of the surgeons, who have sent me most of these cases, when I say that their record in the cases so treated seems to be better than it was before this became their practice.

It has been suggested many times that possibly the danger of the spread of carcinoma or sarcoma was increased when a lesion was exposed to *x*-rays. I have had this closely in mind, but in the several hundred cases that I have treated I have never seen a metastasis occur that seemed reasonably attributable to the use of *x*-rays. Metastases have certainly not occurred more frequently than would be expected naturally. I have, indeed, seen many lesions clean up without the development of metastases when there seemed to be every reason to fear them from the natural course of the disease. If this accident were probable it would show itself in my record of epitheliomas, and no such unexpected accident has happened in any of these cases.

### PSEUDOLEUKEMIA AND LEUKEMIA.

The first suggestion, as far I know, of the use of *x*-rays in leukemia or in pseudoleukemia was made to me by Dr. A. J. Ochsner, and the first cases of this sort reported were three cases which I reported three years ago, two of which were demonstrated. One of these cases was a splenic leukemia which had inadequate treatment and was reported as a failure. The other two cases were cases of pseudoleukemia which I showed symptomatically cured. The first of these patients, a child 4 years old, had a recurrence of the disease in the neck seven months later, which was removed by operation, and the child died within a few days of inspiration pneumonia. In the second case, in which there had been very large glands, the patient is living and at his work at the present time. For two years after he was presented to the society he was well, he thought, and had no further treatment. A year ago he developed large mediastinal glands with pressure symptoms, but, much to my surprise, recovered under *x*-ray exposures given for a month. Recently he appeared again with some glands the size of an olive in the neck and groins which have just disappeared under *x*-ray exposures. Except for these two months he has been in his usual health and vigor for three years. I have had several cases of pseudoleukemia which have cleared up under *x*-rays, but no other case that I have been able to follow so closely as this one.

My experience in removing the enlarged glands in true leukemia has been as favorable as in pseudoleukemia, but in most of the cases that I have seen the improvement in the blood has not kept pace with the decrease in the glands; while the patients improved, the results have not been radical. I have recently, however, had an extraordinary experience in true leukemia.

*Patient.*—A physician, aged 34, was referred to me on Oct. 3, 1904, by Drs. W. A. Evans and Adolph Gehrmann with a diagnosis of splenic leukemia. He had not been in vigorous health for about a year, and on August 16 had had his appendix removed, and at that time his spleen was not enlarged.

*Examination.*—Soon after this he began to grow weak and five weeks later, on examination by Dr. Evans, he was found to have a well-developed splenic leukemia; it had developed, therefore, rapidly. On October 4 the spleen filled almost the entire left side of the abdomen, extending two inches below the umbilicus and inwards to the middle line, and was tender on pressure. The only other gland palpable was a pea-sized gland in the right clavicular space. He was much reduced in flesh and had rapidly lost strength until he was incapacitated for any exertion.

*Blood.*—The blood analysis of the Columbus laboratories at that time was as follows:

| | |
|---|---|
| Percentage of hemoglobin | 75 |
| Number of red cells per cm | 4,080,000 |
| Percentage of red cells | 81.6 |
| Corpuscle hemoglobin index | 91.8 |
| Number of white cells per cm | 160,000 |
| Polymorphonuclears (per cent.) | 58.6 |
| Large mononuclears (per cent.) | 10 |
| Small mononuclears (per cent.) | 4 |
| Eosinophiles (per cent.) | 1.2 |
| Eosinophile myelocytes (per cent.) | 1.2 |
| Myelocytes (per cent.) | 25 |

*Treatment and Result.*—The patient was given daily *x*-ray exposures, one over the spleen and a general exposure to take in all the body except the head. He was also given 10 mg. of sodium cacodylate, t. i. d. The improvement in his general condition was rapid. At the end of the first week he insisted that he felt distinctly better, and this improvement constantly continued. In two weeks the spleen was reduced to one-half its former size. On November 5, just one month after beginning treatment, the *x*-ray exposures were stopped on account of considerable erythema over the spleen, and he has had no further exposures, although the *x*-ray effect promptly subsided and at no time gave any trouble. By this time the spleen was reduced until it was just palpable. He had regained his normal health and vigor and had resumed his usual work. Since that time the general improvement and the improvement in his blood has been maintained. He has gained twenty pounds in weight, has a good color and the general appearance of a man in good health. The spleen shows no indications of returning enlargement and is not palpable.

Weekly differential blood counts showed continuous improvement until the blood became normal. Myelocytes were present in decreasing numbers until the middle of December, when they disappeared. At my request the Columbus laboratories made a count on December 28, which is as follows:

| | |
|---|---|
| Percentage of hemoglobin | 82 |
| Number of red cells per cm | 4,736,000 |
| Percentage of red cells | 94.7 |
| Corpuscle hemoglobin index | 86.6 |
| Number of white cells per cm | 6,900 |
| Polymorphonuclears (per cent.) | 73 |
| Large mononuclears (per cent.) | 6 |
| Small mononuclears (per cent.) | 19 |
| Eosinophiles (per cent.) | 2 |
| Basophiles (per cent.) | 1 |
| Volume percentage | 92 |
| Coagulation firm in three minutes. | |

### GOITER.

I have used *x*-rays in a good many cases of goiter. In some small parenchymatous goiters there has been permanent diminution in their size. In one of these cases the gland has shown no returning enlargement after eighteen months. In most of the cases, however, there has been no benefit.

70 Madison Street.

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# A BACTERIOLOGIC AND CLINICAL STUDY OF A CURATIVE SERUM FOR TYPHOID FEVER.*

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Although the production of an effective curative serum for typhoid fever would be a great addition to therapeutics, yet the accomplishment of this result is beset by several difficulties. It is well known that the typhoid bacillus is usually present in the blood and tissues, and that it increases in the tissues. The destruction of the bacilli in the circulation and tissues depends on the successful interaction of two distinct bodies.

The body which actually destroys the typhoid bacillus is the complement and is present as a ferment-like body in the serum or cells of the body. The second substance is usually the product of artificial immunity, though it too may be normally present in the body. It is well known as the intermediary body. Following out the theories of Ehrlich as so clearly explained by Welch[1] in the Huxley lecture for 1902, this intermediary body is produced in an immune serum by means of certain so-called haptophore groups which are possessed by the typhoid bacilli themselves. These groups of atoms have a special affinity for corresponding haptophorous groups in the cells of the body.

The continued appropriation of these receptors by the body cells causes an excessive production of similar receptors on the part of these body cells. Many of these are cast off into the lymph and blood and form the free amboceptors or intermediary body.

According to Ehrlich's latest statements, both the complement and the amboceptor, or intermediary body, are composed of several complex chemical groups. One group of the complement is called the zymotoxic group, and this causes the injury to the foreign cell which in the present instance is the typhoid bacillus. The complement also contains other groups which unite with complementophilic groups in the amboceptor, or intermediary body. The amboceptor in addition contains another haptophore group, which unites with a receptor of the foreign cell.

The destruction of the typhoid bacillus in the blood and tissues therefore depends on the assimilation of the zymotoxic group of the complement and the haptophore group of the intermediary body by receptors present in the typhoid bacillus.

## EXPERIMENTAL WORK IN ANIMALS.

The work which we have undertaken has consisted in the production of a serum containing a large amount of the intermediary body, and it is therefore proper to first consider the question of the efficacy of an immune serum in the treatment of experimental typhoid infection in animals.

It has long been known that the injection of nonfatal doses of typhoid bacilli into guinea-pigs will render these animals immune to further inoculations, and the mechanism of this immunity has been explained by the work of Pfeiffer, Metchnikoff and Ehrlich. These experiments have only resulted in the protection of normal animals against typhoid infection, and have still left the cure of infection an open question.

Abell and Loeffler[2] were among the first to demonstrate the power of immune serum to cure typhoid infection in animals, and the serum which they used was prepared by injecting fresh fluid cultures of the typhoid bacillus into dogs in gradually increasing doses. The bacillus which they used would kill guinea-pigs weighing 300 grams in doses of 1/50 of a cubic centimeter, but 0.001 c.c. of the immune serum would protect guinea-pigs against 100 times the minimum fatal dose in non-protected animals. They could also cure guinea-pigs infected with double the fatal dose of typhoid bacilli as late as eight hours after infection by injecting 0.5 of a cubic centimeter of this immune serum.

Ainley Walker[3] also made a number of experiments which prove that animals can be protected against typhoid infection, and also cured after artificial infection has been produced.

In order to secure the maximum effect of a curative serum this writer considers that the animal yielding the serum should be injected with several different strains of *Bacillus typhosus*. This serum was prepared by first injecting a horse with dead carbolized cultures of one special strain of the typhoid bacillus. The dose was gradually increased to 150 cubic centimeters and this serum might be called serum No. 1. Serum No. 2 was prepared later from the same horse by injecting a similar mixture of four varieties of the typhoid bacillus, and it was therefore polyvalent. He found that serum No. 1 produced agglutination in much greater dilutions with the typhoid organism used for the immunization of the horse, than it did with the other typhoid bacilli. Serum No. 2, however, which was prepared by mixing the four different organisms, agglutinated all the types in much greater dilutions, although it still agglutinated the original bacillus in the highest dilution.

Rabbits were also immunized with races of bacilli from three different sources, and each strain was used for a definite period of time, one following the other.

It was found that the agglutinative power of the rabbit's serum rose toward each special bacillus during the period in which it was used for immunizing purposes, but remained much lower for other typhoid organisms.

The immunizing properties of the horse serum No. 1 and No. 2 were also tested by determining the least amount of serum which would protect guinea-pigs against the fatal dose of several different typhoid bacilli. Serum No. 1 was only protective in large doses when a type of bacillus was used which had not been used to immunize the horse. The polyvalent serum No. 2, in which four different types of typhoid bacilli were used for immunization of the horse, protected the guinea-pigs against the least fatal dose of all of the bacilli used for injecting the horse in much smaller doses than those which were effective against the same organisms with the first monovalent serum. As an example, monovalent serum No. 1 protected 100 grams of guinea-pig in doses of 0.3 c.c. of serum against bacillus 7, which was not used in its production. Bacillus 7 was used mixed with three other strains in injecting the horse for serum No. 2.

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* Read in the Section on Pathology and Physiology of the American Medical Association, at the Fifty-fifth Annual Session, June, 1904.

[1] Welch: The London Lancet, Oct. [illegible]902.

[2] Abell and Loeffler: Centralb. f. Bak. Erste Abt., Jan. 23, 1902.

[3] Ainley Walker: Antityphoid Sera, Journal of Path. and Bact., June, 1901; Ibid., Immunization Against Immune Serum. Jour. of Path. and Bact., March, 1902; Ibid., Production and Specific Treatment of Typhoid Infection in Animals, Jour. of Path. and Bact., November, 1901.

This serum No. 2, therefore, as might be expected, protected 100 grams of guinea-pig against the least fatal dose of bacillus 7 in a dose of 0.1938 cubic centimeters.

From what has gone before, it will be seen that the most effective serum for the general protection of animals against typhoid infection is a polyvalent serum.

Walker[3] was also able to produce a disease in rabbits, which ran a course similar to typhoid fever, and then cure such animals by the use of immune serum. In order to produce a continued fever, he injected protective serum intraperitoneally along with the typhoid bacillus, and while not enough to entirely protect the rabbits, it caused a prolonged fever in most cases.

If the rabbits received intraperitoneal doses of the typhoid bacillus and the protective serum for seven days a continued fever with emaciation was produced which usually terminated fatally in from ten to fifteen days. At the autopsy these animals showed distinct typhoid lesions, such as enlargement of the spleen and mesenteric lymph glands, and even swelling, hemorrhage, and occasionally ulceration of Peyer's patches.

Other rabbits were treated in a similar way, but after the infection had been established at the end of seven days the injection of the typhoid bacilli was discontinued. The injection of the protective immune serum was continued for from four to seven days longer, usually until the beginning of convalescence was noted. These animals almost always recovered from the infection.

Although Walker's experiments are not numerous, yet it can be concluded that in animals immune serum can cure typhoid infection, if used during the height of the disease.

### DIFFICULTIES OF PRACTICAL APPLICATION.

One of the first objections to be met is the fact that a protective or curative serum for man must be prepared from another species, but this also partially holds good as against diphtheria antitoxin. Walker[3] thinks that the difference in the immune serum from different species consists in a distinct and separate immune body for each species. He proved that the immune body of the horse and guinea-pig for the typhoid bacillus were different in the following ingenious way: He injected guinea-pigs with gradually increasing doses of typhoid horse immune serum, and thus produced an anti-immune serum in the guinea-pig. This was caused by stimulating the receptors of the guinea-pig's cells to form many free receptors for the immune body of the horse's serum. After allowing the guinea-pigs several weeks in which to get rid of the immune serum, he tested them with a typhoid bacillus whose minimum fatal dose had already been established. He found that a substance had been formed in the guinea-pig's blood which was simply an antibody to the immune body in the horse's serum. since it took larger amounts of horse immune serum than usual to protect the guinea-pig against the known minimum fatal dose of the typhoid bacillus.

He found, however, that this substance was not an antibody toward the guinea-pigs' immune body, since the minimum fatal dose of the typhoid bacillus remained the same for these guinea-pigs, as for normal animals. The free receptors for the immune body of the horse could not combine with the immune body of the guinea-pig when called into play to destroy the bacilli. It therefore follows that the immune body of the horse and guinea-pig must differ since receptors forming an antibody and combining with the horse's immune body could not combine nor interfere with the immune body formed in the tissues of the guinea-pig, and the minimum fatal dose remained the same.

Walker does not think that this fact interferes with the immunization of one animal with the blood serum of another, since these different immune bodies all have the same haptophore atoms for the complement, and the practical results are just as satisfactory. Indeed, as above stated, he proved that he could cure rabbits suffering from typhoid infection with horse immune serum.

It has also been claimed by some that the injection of an immune serum will gradually produce an antibody to the immune serum, and that the bacteria will thus be allowed full sway. This anti-immune body would only be an antibody for the foreign immune serum injected, and in the case of a human being with typhoid fever would not interfere with the intermediary body of the human species, since the intermediary bodies are special to the species. Walker's experiments also show that it takes several weeks to form an anti-immune serum. He injected guinea-pigs with an immune serum every other day for 10 days, and then waited another week before drawing their serum. He still found that these animals were protected by a smaller dose of immune serum than normal animals, so that no anti-immune serum was produced even after seventeen days. It was only after waiting longer that an anti-immune body formed, so that reasoning from these experiments, the production of an anti-immune body would not play any practical part in the routine injection of four or five doses of immune serum in treating typhoid fever in human beings.

It may be also urged against the use of an immune serum, that during infection the complement becomes exhausted, and that the immune body is thus rendered useless and unable to destroy the bacteria without the complement.

The gradual loss of the complement in typhoid fever was first proved by Mark Richardson[4] who showed that the serum of typhoid patients, and even of convalescents, was not usually able to destroy typhoid bacilli, but that if the serum of normal persons was added to the mixture of typhoid serum and bacilli that complete bacteriolysis took place. If he mixed the normal serum and typhoid serum first and then added the typhoid bacilli no bacteriolysis or destruction of typhoid bacilli took place. Apparently the immune body must combine first with the typhoid bacillus in order to render the destructive and digestive effect of the complement effective.

Longcope[5] has studied the serum complement in typhoid fever, and his researches seem to show that there is a special complement in the blood for the immune body produced by the typhoid bacillus. Typhoid bacilli showing control plate cultures of from forty to sixty thousand colonies were usually destroyed in five hours, by one cubic centimeter of serum from typhoid patients, but the diminution of complement was shown by the large amounts of the typhoid serum which were necessary to render active heated serum in destroying the typhoid bacillus. It took from 1/10 to 2/10 of a cubic centimeter of the untreated typhoid serum to reactivate heated serum for the *Bacillus dysenteriæ* and *Bacillus paratyphi*, and from 2/10 to 4/10 of a cubic centimeter of this unheated serum to reactivate the heated serum and cause it to destroy the typhoid bacilli in five hours.

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[4] Richardson: Jour. of Med. Research, vol. vi, No. 1.
[5] Longcope: Jour. of Hygiene, vol. iii, No. 1, January, 1903.

Although Longcope's experiments indicate a slight diminution in the typhoid complement in typhoid fever, yet this does not prove that it is absent or even beyond the reach of an immune body when injected.

The most serious danger to be avoided in the use of immune serum in the treatment of typhoid fever is the use of an excessive amount of serum. Such serum in great excess, according to Walker, may do harm by absorbing all the complement, and thus prevent bacteriolysis.

He used tubes containing from ten to twenty drops of fresh rabbit's serum and found that such quantities destroyed one loopful of typhoid bacilli in about five hours. He then added immune rabbit or horse typhoid serum to the fresh rabbit serum which had been heated to 55 C., thus only leaving the immune body. Quantities of the immune serum equaling from 1/4 to 1/2 the fresh serum caused a decrease in the destruction of the typhoid bacilli, and equal parts of the immune serum entirely prevented bacteriolysis. Walker thought that the excessive amount of the intermediary body combined with the complement and prevented its action in dissolving the typhoid bacilli. When 1/10 of the immune serum was added bacteriolysis was not interfered with, and certainly such a quantity of immune serum as compared to the normal serum of the body would never be used in the treatment of a typhoid patient.

In the body of a patient during typhoid infection an excessive amount of immune body will probably find other materials with which to combine in preference to the complement. Welch[1] in "The Huxley Lecture" has called attention to the fact that while it has been well recognized that the injection of typhoid bacilli or other foreign cells into the tissues of an animal host will produce an intermediary body from the cells of the host, yet the final action of intermediary bodies upon the bacteria has not been considered. He advances the theory that the foreign bacteria may stimulate the cells to the formation of intermediary bodies, which in turn call forth the production of intermediary bodies by the invading bacteria themselves. These, if they find suitable complements in the serum, can produce cytolysis or injury to the various tissue cells, and this theory can thus account for the extensive injuries to the various body cells in such an infection as typhoid fever. An excessive amount of immune body which could not be used in bacteriolysis might combine with these discharged bacterial receptors and prevent their injuring the cells of the body.

It is important, therefore, to prepare an immune serum by using dead as well as living cultures, as Walker has shown that a serum made only from live cultures will not protect guinea-pigs against injections of dead cultures containing the intracellular poisons of the typhoid bacillus.

### METHODS OF PREPARING AND STANDARDIZING THE SERUM.

The preparation of the first serum which we used on patients was begun in July, 1900, and the results were published in *The Proceedings of the American Public Health Association* for 1901, and the *Maryland Medical Journal* for August, 1902.[6] Since that time several other serums have been prepared, but as the methods of preparation have not changed, the following quotation from our first article will explain our general method of preparation of the serum in detail. It has not been thought necessary to publish more than one table in explanation of the injections of the hog, the changes in agglutination, and the determination of the minimal fatal dose and the protection afforded animals against multiple fatal doses by the serum. Certain statements at the end of these typical tables will briefly summarize the work which has been performed in connection with these points in relation to the other serums which we have prepared:[7]

> An organism was obtained from the Johns Hopkins Pathological Laboratory called bacillus No. 16, which was found to be virulent for guinea-pigs in doses of 1 c.c. when introduced into the peritoneal cavity. Forty-eight-hour-old cultures were used for injection, and on July 24, 1900, a dose of 10 c.c. was injected into the tissues of the abdomen of hog No. 1. These injections were continued in increasing doses at intervals of about ten days until Dec. 31, 1900, when the dose had reached 1,130 c.c. of a pure bouillon culture of the typhoid bacillus. The temperature during all this time was never lower that 39.5 degrees C., and never reached over 41 degrees C. As the larger injections were given the animal would sometimes remain quiet for a day and lose its appetite. No sloughs occurred, and the health of the animal remained practically normal.

It is a difficult matter to inject such quantities as a liter of bouillon into the subcutaneous tissues of the abdomen of a hog, but we succeeded well by using the glass vessel intended for injecting salt solution. The fluid can be forced into the tissues by attaching the foot bellows of a blast flame by rubber tubing to the glass tube entering the top of the salt-solution apparatus. The needle for injecting should be very stout, with a large lumen. The one which we used had a lumen of 1 mm. By this means a liter can be injected through two punctures of the skin, one-half of a liter being forced into the loose tissue on each side of the groin. The skin should be washed and disinfected with 5 per cent. carbolic acid before each injection.

The animal was bled three times, 1 liter of blood being drawn each time, which yielded about 200 c.c. of serum. After the first bleeding a month elapsed, when 500 c.c. were again injected, and in two weeks the animal was again bled. This was again repeated, and serums No. 1, No. 2 and No. 3 were thus produced. This serum was kindly drawn and trikresolized at Mr. Mulford's laboratory, and we desire to thank him and Dr. J. J. Kinyoun for their kindness.

> On Aug. 1, 1902, hog No. 2 was injected with 5 c.c. of a twenty-four-hour culture of the typhoid bacillus made virulent by the celloidin capsule treatment in the peritoneal cavity of a guinea-pig. This killed 300-gram guinea-pigs in doses of .3 of a cubic centimeter of the suspension from blood serum cultures described later. In two weeks 100 c.c. were injected without any bad results, and the dose was increased every two weeks until at the end of eleven months the hog received 1,000 c.c. of a virulent typhoid culture. On August 1, 200 c.c. of serum were obtained from this hog and was called serum No. 4.

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6. Stokes and Fulton: Proceedings of the Amer. Pub. Health Assn., 1901, and Maryland Medical Jour., August, 1902.

7. Quotation from former article.

Hog No. 3 was treated at the same time to similar injections, and was bled in eleven months from the left carotid artery and 200 c.c. of serum were obtained. The artery was ligated, and at intervals of two weeks the hog was again injected with doses beginning with 500 c.c. and ending with 1,000 c.c. After two months' treatment 200 c.c. of serum was again obtained and the hog was allowed to die from this bleeding from the right carotid artery. The serums were called No. 5 and No. 6.

Hog No. 4 was first injected with 50 c.c. of a typhoid bacillus called bacillus No. 6, on April 15, 1903, and in four days the dose was increased to 100 c.c. The doses were rapidly increased until at the end of twenty days the hog received 400 c.c. At the end of 70 days 800 c.c. of a virulent twenty-four-hour culture of the typhoid bacillus was injected, and similar doses of a second and very virulent bacillus called *Bacillus wassermannii* were injected every two weeks for 70 more days. To some extent, at least, this last serum was made polyvalent, and the serum thus obtained we shall call polyvalent serum No. 1, to distinguish it from the other serums, which were monovalent. This *Bacillus wassermannii* was fatal to guinea-pigs in a dose .25 cm. of the suspension from a blood serum tube in 4 c.c. of salt solution which is described later as the routine standard for determining the minimum fatal dose.

In order to show how virulent this Wassermann bacillus had become, it might be mentioned that we treated hog No. 5 just as we had hog No. 4, but on giving the animal its first injection of 800 cubic centimeters of *Bacillus wassermannii* the animal died four days later of general typhoid bacteriemia with extensive necrosis at the seat of inoculation, and areas of necrosis in the various viscera.

### PRODUCTION OF AGGLUTINATION BY THE VARIOUS SERUMS.

A series of experiments had been carried on with hog No. 1 in which a liter of pure bouillon typhoid culture was given to the animal as food every day for one month. This did not even cause a distinct agglutinative reaction at a dilution of 1 to 10. When the subcutaneous injections were begun, however, the agglutinative reaction began to rise, and on March 1, 1901, the serum gave a distinct agglutinative reaction at a dilution of 1 to 45,000. This was called serum No. 1. On April 12, after the second bleeding, the agglutinative reaction fell to 1 to 30,000, and on May 15, after the third bleeding, the serum only gave a reaction at 1 to 15,000. Only complete reactions after two hours were counted, and all of these showed complete agglutination and cessation of motility even after twenty-four hours. Table No. 1 will show the gradual increase in the power of the agglutinative reaction.

The serums prepared from hogs No. 2 and No. 3 were tested for the power of agglutination, but this was very weak, only reaching a positive reaction with the bacillus which was used for immunizing the hogs in a dilution of 1 to 1,000. These serums were Nos. 4, 5 and 6.

The polyvalent serum No. 1, from hog No. 4 was tested for the strength of its agglutinative power with several different types of typhoid bacilli, including the organisms which were used in immunizing the hog. As our results correspond to those obtained by Ainley Walker, a description of his experiments will first be made.

This observer found when he immunized rabbits with a certain race of the typhoid bacillus that the serum of these rabbits would agglutinate this special bacillus in much higher dilutions than those effective in agglutinating other races of typhoid bacilli. If he used another race of the typhoid bacillus for a second set of injections in the same animal he found that the serum would agglutinate this second organism in dilutions just as great as that obtained for the first organism, but that no cumulative effect could be obtained from these two sets of injections. In other words, the serum from rabbits prepared by injecting them with bacillus A. and bacillus B., would only agglutinate these organisms in as high a dilution as the serum prepared by simply injecting either bacillus A. or bacillus B. separately.

TABLE No. 1.

Agglutination Experiments.—Record of Widal test in pig injected with cultures of the typhoid bacillus.

| Date of Test. | Results. | Dilution. |
|---|---|---|
| August 22, 1900 | + | 1-100 |
| August 22, 1900 | + | 1-500 |
| August 22, 1900 | + | 1-1000 |
| August 22, 1900 | — | 1-2000 |
| August 22, 1900 | — | 1-5000 |
| August 22, 1900 | — | 1-10000 |
| August 22, 1900 | — | 1-15000 |
| August 29, 1900 | + | 1-1000 |
| August 29, 1900 | — | 1-1500 |
| August 29, 1900 | + | 1-2000 |
| September 15, 1900 | + | 1-1500 |
| September 15, 1900 | + | 1-2000 |
| September 15, 1900 | Slight. | 1-3000 |
| September 15, 1900 | Slight. | 1-4000 |
| October 16, 1900 | Slight. | 1-3000 |
| October 16, 1900 | — | 1-4000 |
| November 1, 1900 | + | 1-3000 |
| November 1, 1900 | + | 1-4000 |
| November 13, 1900 | + | 1-4000 |
| November 13, 1900 | + | 1-5000 |
| November 13, 1900 | + | 1-6000 |
| November 13, 1900 | + | 1-7000 |
| November 20, 1900 | — | 1-8000 |
| November 20, 1900 | — | 1-9000 |
| December 4, 1900 | + | 1-7000 |
| December 4, 1900 | + | 1-8000 |
| December 15, 1900 | + | 1-9000 |
| December 15, 1900 | + | 1-10000 |
| | Serum No. 1, Drawn Feb. 27, '01. | |
| March 13, 1901 | + | 1-14000 |
| March 13, 1901 | + | 1-15000 |
| March 13, 1901 | + | 1-16000 |
| March 13, 1901 | + | 1-17000 |
| March 13, 1901 | + | 1-20000 |
| March 21, 1901 | + | 1-22000 |
| March 21, 1901 | + | 1-24000 |
| March 21, 1901 | + | 1-26000 |
| March 21, 1901 | + | 1-28000 |
| March 21, 1901 | + | 1-30000 |
| March 28, 1901 | + | 1-32000 |
| March 28, 1901 | + | 1-34000 |
| March 28, 1901 | + | 1-36000 |
| March 28, 1901 | + | 1-38000 |
| March 28, 1901 | + | 1-40000 |
| April 12, 1901 | + | 1-45000 |
| April 12, 1901 | Slight. | 1-50000 |
| April 12, 1901 | Slight. | 1-55000 |
| April 12, 1901 | — | 1-60000 |
| April 12, 1901 | Slight. | 1-65000 |
| | Serum No. 2, Drawn Mar. 10, '01. | |
| April 13, 1901 | + | 1-15000 |
| April 13, 1901 | + | 1-20000 |
| April 13, 1901 | + | 1-25000 |
| April 13, 1901 | + | 1-30000 |
| April 13, 1901 | + | 1-35000 |
| | Serum No. 3, Drawn April 5, '01. | |
| May 1, 1901 | + | 1-15000 |
| May 1, 1901 | ° | 1-20000 |

On June 13, after the hog No. 4 had received 650 c.c. of a bouillon culture of bacillus No. 6, the serum agglutinated this organism at a dilution of 1 to 10,000, and on September 25, it gave an agglutinative reaction at a dilution of 1 to 50,000 when added to bacillus No. 6. Injections with this organism had ceased about July 15, when the dose reached 80 c.c., and similar injections of a typhoid bacillus called *Bacillus wassermannii* were given so as to make the serum polyvalent. Yet, strange to say, on September 25, when the serum agglutinated bacillus No. 6 at 1 to 50,000 it did not agglutinate *Bacillus wassermannii* even in as strong a dilution as 1 to 100. The hog was bled on September 20, and from that time until October 15, the Wassermann typhoid bacillus was injected every two weeks in doses

TABLE No 2.—SHOWING ANIMAL EXPERIMENTS.

| No. of Guinea Pig. | Dose of Serum No. 3. | Dose of Typhoid Bacillus. | Died. | Result of Autops |
|---|---|---|---|---|
| No. 1 | None | 1 cm. Bouillon Culture | No. | |
| No. 2 | None | 1 cm. Bouillon Culture | No. | |
| No. 3 | None | 1 cm. Bouillon Culture | No. | |
| No. 4 | None | 1 cm. Bouillon Culture | No. | |
| No. 5 | None | 1 cm. Bouillon Culture | No. | |
| No. 6 | None | 1 cm. Bouillon Culture | No. | |
| No. 7 | None | 1 cm. Bouillon Culture | No. | |
| No. 8 | None | 2 cm. Suspension fr. Serum, Bacillus No. 1 | Yes ; 24 hours | Purulent Peritonitis ; General S |
| No. 9 | None | 2 cm. Suspension fr. Serum, Bacillus No. 1 | Yes ; 24 hours | Purulent Peritonitis ; General S |
| No. 10 | None | 2 cm. Suspension fr. Serum, Bacillus No. 2 | No. | |
| No. 11 | None | 2 cm. Suspension fr. Serum, Bacillus No. 2 | No. | |
| No. 12 | None | 2 cm. Suspension fr. Serum, Bacillus No. 3 | No. | |
| 'o. 13 | None | 2 cm. Suspension fr. Serum, Bacillus No. 3 | No. | |
| o. 14 | None | 2 cm. Suspension fr. Serum, Bacillus No. 4 | Yes ; 24 hours | Purulent Peritonitis ; General Se |
| . 15 | None | 2 cm. Suspension fr. Serum, Bacillus No. 4 | Yes ; 24 hours | Purulent Peritonitis ; General Se |
| . 16 | None | 2 cm. Suspension fr. Serum, Bacillus No. 5 | No. | |
| o 17 | None | 2 cm. Suspension fr. Serum, Bacillus No. 5 | No. | |
| No. 18 | None | 2 cm. Suspension fr. Serum, Bacillus No. 1 | Yes ; 24 hours | Purulent Peritonitis ; General Se |
| No. 19 | None | 2 cm. Suspension fr. Serum, Bacillus No. 1 | Yes ; 24 hours | Purulent Peritonitis ; General Se |
| No. 20 | 1 cm. Subcutaneous | 2 cm. Suspension fr. Serum, Bacillus No. 1 | No. | |
| No. 21 | 1 cm. Subcutaneous | 2 cm. Suspension fr. Serum, Bacillus No. 1 | No. | |
| No. 22 | 1 cm. Subcutaneous | 2 cm. Suspension fr. Serum, Bacillus No. 1 | No. | |
| No. 23 | 1 cm. Subcutaneous | 2 cm. Suspension fr. Serum, Bacillus No. 4 | No. | |
| No. 24 | 1 cm. Subcutaneous | 2 cm. Suspension fr. Serum, Bacillus No. 4 | No. | |
| No. 25 | 1 cm. Subcutaneous | 2 cm. Suspension fr. Serum, Bacillus No. 4 | No. | |
| No. 26 | 0.5 cm. Subcutaneous | 2 cm. Suspension fr. Serum, Bacillus No. 1 | No. | |
| No. 27 | 0.5 cm. Subcutaneous | 2 cm. Suspension fr. Serum, Bacillus No. 1 | No. | |
| No. 28 | 0.5 cm. Subcutaneous | 2 cm. Suspension fr. Serum, Bacillus No. 1 | No. | |
| No. 29 | 0.5 cm. Subcutaneous | 2 cm. Suspension fr. Serum, Bacillus No. 4 | No. | |
| No. 30 | 0.5 cm. Subcutaneous | 2 cm. Suspension fr. Serum, Bacillus No. 4 | No. | |
| No. 31 | 0.5 cm. Subcutaneous | 2 cm. Suspension fr. Serum, Bacillus No. 4 | No. | |
| No. 32 | None | 1 cm. Bacillus No. 1 | Yes ; 24 hours | Purulent Peritonitis ; General Sep |
| No. 33 | None | 1 cm. Bacillus No. 1 | Yes ; 48 hours | Purulent Peritonitis ; General Sep |
| No. 34 | None | 0.5 cm. Bacillus No. 1 | Yes ; 24 hours | Purulent Peritonitis ; General Sep |
| No. 35 | None | 0.5 cm. Bacillus No. 1 | Yes ; 24 hours | Purulent Peritonitis ; General Sep |
| No. 36 | None | 0.5 cm. Bacillus No. 1 | Yes ; 24 hours | Purulent Peritonitis ; General Sep |
| No. 37 | None | 1 cm. Bacillus No. 4 | Yes ; 36 hours | Purulent Peritonitis ; General Sep |
| No. 38 | None | 1 cm. Bacillus No. 4 | Yes ; 24 hours | Not Autopsied. |
| No. 39 | None | 6.5 cm. Bacillus No. 4 | Yes ; 48 hours | Not Autopsied. |
| No 40 | None | 0.5 cm. Bacillus No. 4 | Yes ; 24 hours | Purulent Peritonitis ; General Sep |
| No. 41 | None | 0.5 cm. Bacillus No. 4 | Yes ; 24 hours | Purulent Peritonitis ; General Sep |
| No. 42 | None | 0.5 cm. Bacillus No. 1 | Yes ; 24 hours | Purulent Peritonitis ; General Sep |
| No. 43 | None | 0.5 cm. Bacillus No. 1 | Yes ; 24 hours | Purulent Peritonitis ; General Sep |
| No. 44 | None | 0.5 cm. Bacillus No. 1 | Yes ; 5 days | No Autopsy. |
| No. 45 | None | 0.5 cm. Bacillus No. 1 | Yes ; 9 days | No Autopsy. |
| No. 46 | None | 0.5 cm. Bacillus No. 1 | Yes ; 4 days | No Autopsy. |
| No. 47 | 0.1 cm. Subcutaneous | 0.5 cm. Bacillus No. 1 | No. | |
| No. 48 | 0.1 cm. Subcutaneous | 1.0 cm. Bacillus No. 1 | No. | |
| No. 49 | 0.1 cm. Subcutaneous | 1.5 cm. Bacillus No. 1 | Yes | Purulent Peritonitis ; General Sept |
| No. 50 | 0.1 cm. Subcutaneous | 2.0 cm. Bacillus No. 1 | Yes | Purulent Peritonitis ; General Sept |
| No. 51 | 0.1 cm. Subcutaneous | 2.5 cm. Bacillus No. 1 | Yes | Purulent Peritonitis ; (No Culture |
| No. 52 | 0.1 cm. Subcutaneous | 3.0 cm. Bacillus No. 1 | Yes | Purulent Peritonitis ; (No Culture |
| No. 53 | 0.1 cm. Subcutaneous | 3.5 cm. Bacillus No. 1 | Yes | Purulent Peritonitis ; General Sept |
| No. 54 | 0.1 cm. Subcutaneous | 4.0 cm. Bacillus No. 1 | Yes | Purulent Peritonitis ; General Sept |
| No. 55 | None | 1 cm. Bacillus fr. capsule to increase virulence | Yes | [illegible] General Sept |
| No. 56 | None | 0.5 cm. Bacillus fr. capsule to increase virulence | Yes | [illegible] General Sept |
| No. 57 | None | 0.3 cm. Bacillus fr. capsule to increase virulence | Yes | [illegible] General Sept |
| No. 58 | None | 0.2 cm. Bacillus fr. capsule to increase virulence | No. | |
| No. 59 | None | 0.1 cm. Bacillus fr. capsule to increase virulence | No. | |
| No. 60 | 0.1 cm. Intraperitoneal | 0.3 cm. Bacillus fr. capsule to increase virulence | No. | |
| No. 61 | 0.1 cm. Intraperitoneal | 0.5 cm. Bacillus fr. capsule to increase virulence | No. | |
| No. 62 | 0.1 cm. Intraperitoneal | 0.7 cm. Bacillus fr. capsule to increase virulence | No. | |
| No. 63 | 0.1 cm. Intraperitoneal | 0.8 cm. Bacillus fr. capsule to increase virulence | No. | |
| No. 64 | 0.1 cm. Intraperitoneal | 1.0 cm. Bacillus fr. capsule to increase virulence | No. | |
| No. 65 | 0.1 cm. Intraperitoneal | 1.0 cm. Bacillus fr. capsule to increase virulence | No. | |
| No. 66 | 0.1 cm. Intraperitoneal | 1.5 cm. Bacillus fr. capsule to increase virulence | No. | |
| No. 67 | 0.1 cm. Intraperitoneal | 2 cm. Bacillus fr. capsule to increase virulence | Yes ; 48 hours | Purulent Peritonitis ; General Septic |
| No. 68 | 0.1 cm. Intraperitoneal | 2.5 cm. Bacillus fr. capsule to increase virulence | Yes ; 24 hours | Purulent Peritonitis ; General Septic |
| No. 69 | 0.1 cm. Intraperitoneal | 3 cm. Bacillus fr. capsule to increase virulence | Yes ; 24 hours | No Autopsy. |
| No. 70 | 0.5 cm. Intraperitoneal | 1.0 cm. Bacillus fr. capsule to increase virulence | No. | |
| No. 71 | 0.5 cm. Intraperitoneal | 1.5 cm. Bacillus fr. capsule to increase virulence | No. | |
| No. 72 | 0.5 cm. Intraperitoneal | 2.0 cm. Bacillus fr. capsule to increase virulence | No. | |
| No. 73 | 0.5 cm. Intraperitoneal | 2.5 cm. Bacillus fr. capsule to increase virulence | Yes | Purulent Peritonitis ; General Septic |
| No. 74 | 0.5 cm. Intraperitoneal | 3.0 cm. Bacillus fr. capsule to increase virulence | Yes | No Autopsy. |
| No. 76 | None | 0.3 cm. Dead Bacilli | No. | |
| No. 77 | None | 0.5 cm. Dead Bacilli | No. | |
| No. 78 | None | 0.8 cm. Dead Bacilli | No. | [Fatty Degenera |
| No. [illegible] | None | 1.0 cm. Dead Bacilli | Yes | Focal Necroses, General Conges |
| No. 8[illegible] | None | 1.2 cm. Dead Bacilli | Yes | Focal Necroses, General Conges<br>[Fatty Degenera |
| No. 81 | 0.5 cm | 0.8 cm. Dead Bacilli | No. | |
| No. 82 | 0.5 cm | 0.8 cm. Dead Bacilli | No. | |
| No. 83 | 0.5 cm | 1.0 cm. Dead Bacilli | No. | |
| No. 84 | 0.5 cm | 1.0 cm. Dead Bacilli | Yes | |
| No. 85 | 0.5 cm | 1.5 cm. Dead Bacilli | Yes | Focal Necroses. |
| No. 86 | 0.5 cm | 1.5 cm. Dead Bacilli | No. | |
| No. 87 | 0.5 cm | 2.0 cm. Dead Bacilli | No. | |
| No. 88 | 0.5 cm | 2.0 cm. Dead Bacilli | No. | [eral Conges |
| No. 89 | 0.5 cm | 2.5 cm. Dead Bacilli | Yes | Focal Necroses, Enlarged Spleen, ( |
| No. 90 | 0.5 cm | 2.5 cm. Dead Bacilli | Yes | No Autopsy. |

of 800 cubic centimeters. The first bleeding, the cessation of injections with bacillus No. 6, and the use of the second organism, or the Wassermann bacillus were all probably effective in causing a drop in the agglutinative strength of the hog's serum toward bacillus No. 6, and in increasing its effect toward *Bacillus wassermannii.* At any rate, tests *made with serum after the second* bleeding on Oct. 15, showed that this serum would only agglutinate bacillus No. 6 in a dilution of 1 to 10,000, while the same serum from September 25 to October 15, while *Bacillus wassermannii* was being used as an injection, had risen in its strength toward this organism from 1 to 100 to 1 to 10,000. It also caused the agglutination of a typhoid bacillus obtained from a typhoid orchitis and a second organism obtained from the spleen of a typhoid case in the same dilution, but when the serum was heated at 56 C. for one hour it only agglutinated these organisms at a dilution of 1 to 5,000. These facts correspond with McFarland's statement that th agglutinins are diminished in activity by a temper-

TABLE No. 3.

| Experiments for Bacteriolytic Effect of Rabbit Serum. | Colonies in Agar Plates. | | | |
|---|---|---|---|---|
| | No hours. | 3 hours. | 6 hours. | 18 hours. |
| 1. 1 c.c. unheated immune hog serum + Wassermann bacillus.... | 160 | 33 | 36 | 60 |
| 2. 1 c.c. unheated immune hog serum + laboratory typhoid No. 6.. | 300 | 14 | 6 | 0 |
| 3. 1 c.c. heated immune hog serum + Wassermann typhoid bacillus | 630 | 405 | 1260 | 0 |
| 4. 1 c.c. heated immune hog serum + laboratory typhoid No. 6... | 630 | 10 | 30 (Compare.) | 1 |
| 5. 1 c.c. unheated rabbit serum + Wasserman bacillus.......... | 1410 | 3600 | 2,4000 (about.) | 48,000 (about.) |
| 6. 1 c.c. heated rabbit serum + laboratory typhoid No. 6........ | 150 | 300 | 3000 | 50,030 (about.) |
| 7. 1 c.c. heated immune hog serum + 1/20 c.c. rabbit's serum + Wassermann typhoid ........................ | 1500 | 270 | 600 | 6000 |
| 8. 1 c.c. heated immune hog serum + 1/20 c.c. rabbit's serum + laboratory typhoid No. 6.......................... | 180 | 18 | 10 | 1200 |
| 9. Immune serum 1 c.c. + rabbit serum 1 c.c. + Wassermann bacillus. (Experiments to see if the complement in rabbit's serum for typhoid will combine with small quantities of immune body from immune hog serum of hog. Immune serum added before bacillus.)...................... | 510 | 360 | 300 | 3000 |
| 10. 1 c.c. rabbit's serum + 1/10 c.c. immune hog serum + Wassermann typhoid ........................ | 750 | 1050 | 12,000 (about.) | 100,000 (about.) |
| 11. 1 c.c. rabbit's serum + 1/10 c.c. immune hog serum + laboratory typhoid.............................. | 90 | 180 | 6000 | 12,000 |
| 12. Dog serum + Wassermann typhoid bacillus................... | 510 | 50 | 10 | 0 |
| 13. Dog serum + laboratory typhoid bacillus................... | 720 | 20 | 0 | 0 |
| 14. Heated dog serum + laboratory typhoid.................... | 640 | 1080 | Innumerable. | Innumerable. |
| 15. Dog serum heated + Wassermann typhoid + 1/10 c.c. immune hog serum.................................. | 600 | 1140 | " | 14400 |
| 16. Heated dog serum + laboratory typhoid + 1/10 c.c. hog immune serum ...................................... | 600 | 1200 | " | Innumerable. |
| 17. Heated dog serum + laboratory typhoid + 1/100 c.c. immune hog serum.................................. | 700 | 3000 | " | " |
| 18. Unheated dog serum + laboratory typhoid + 1/10 immune serum ...................................... | 890 | 2 | 0 | 0 |
| 19. Heated dog serum + laboratory typhoid + 1/10 immune serum heated ..................................... | 420 | 5 hours.<br>480 | 7 hours.<br>50 | 90 |
| 20. Heated dog serum + laboratory typhoid + 1/100 c.c. immune serum heated ............................... | 570 | 5100 | 24,000 (about) | Innumerable. |
| 21. Heated dog serum + laboratory typhoid + 1/1000 c.c immune serum heated ............................... | 480 | 6000 | 36,006 (about.) | " |
| 22. Unheated dog serum + laboratory typhoid + 1/10 heated immune serum................................. | 510 | 0 | 0 (few contaminations.) | 0 |
| 23. Unheated dog serum + laboratory typhoid + 1/100 c.c. heated immune serum ............................ | Contaminated. | 0 | 0 | Contaminated. |
| 24. Unheated dog serum + laboratory typhoid + 1/1000 c.c. heated immune serum............................ | 660 | 0 | 0 | 0 |

TABLE No. 4.

| Experiments on Bacteriolytic Effect of Hog Serum, Immune and Normal. | Colonies in Agar Plates. | | | |
|---|---|---|---|---|
| | No hours. | 3 hours. | 6 hours. | 24 hours. |
| 1. Hog serum + laboratory typhoid........................... | 720 | .................... | 2700 | Innumerable. |
| 2. Heated hog serum + laboratory typhoid.................... | 675 | 1050 | 2400 | " |
| 3. Heated hog serum + unheated immune serum 1/10 c.c. + laboratory typhoid.................................... | 1200 | 150 | 75 | " |
| 4. Heated hog serum + heated immune hog serum 1/10 c.c. + laboratory typhoid................................... | 1350 | 600 | 360 | " |
| (All the rest have 3 drops bouillon except No. 13.) | | | | |
| 5. 1/10 c.c. hog serum + 9/10 c.c. normal salt solution 3 loops bouillon + laboratory *typhoid*....................... | 1200 | 360 | 760 | " |
| 6. 1/10 c.c. hog serum + 8/10 c.c. normal salt solution + 1/10 c.c. immune serum + 3 loops bouillon + laboratory *typhoid*.. | 1030 | 420 | 350 | " |
| 7. 1/10 c.c. hog serum + 1/10 c.c. heated immune serum + 8/10 c.c. salt solution + 3 loops bouillon + laboratory typhoid.... | 1200 | 900 | 660 | 150 |
| 8. Same as No. 7, + 1/100 c.c. heated immune serum. 0.9 c.c. salt. 3 loops of bouillon................................ | 675 | 1050 | 450 | Innumerable. |
| 9. 0.5 c.c. hog serum + 0.3 salt solution + 1/10 c.c. immune serum + laboratory typhoid. 3 loops *bouillon*............ | 600 | 750 | 3500 | " |
| 10. 0.3 c.c. hog serum + 0.6 c.c. salt + 1/10 c.c. immune serum + laboratory typhoid. 0.6 c.c. salt...................... | 420 | Contaminated. | Contaminated. | " |
| 11. 0.5 c.c. hog serum + 0.4 c.c. salt + 0.1 c.c. heated immune serum + laboratory typhoid 0.5 c.c. salt.................. | 1650 | 600 | ...... ............ | 6000 |
| 12. 0.9 c.c. salt + 1/10 c.c. heated immune serum + laboratory typhoid. 3 drops bouillon. *0.9 c.c. salt*.............. | 1500 | 600 | 660 | 60 |
| 13. 1 c.c. salt solution.................................... | 2100 | 780 | 360 | 1050 |
| 14. 1 c.c. salt solution + 3 drops bouillon.................. | 1800 | 1110 | 14400 | Innumerable. |

ature of 60 C. They are destroyed by a temperature of 80 C. Ainley Walker's article on "Antityphoid Sera" contains an excellent account of the variations in agglutination following the injection of different races of the typhoid bacillus.

THE MINIMAL FATAL DOSE AND THE PROTECTIVE INFLUENCE OF THE SERUMS.

In a former publication[6] we described the results of the serum treatment of six cases of typhoid fever, and as the method of testing the minimal fatal dose and the protective influence of the serum has not changed, we have included the description of these methods in our present article, as the following quotation will show:

"It was found that it was not profitable to use bouillon cultures of the typhoid bacillus for injection into animals, because such large doses were needed to produce fatal results. It was found to be much more convenient to use a growth from Loeffler's blood serum, and the following *uniform* method was pursued:

"The blood serum slanted in a small tube measuring 15 mm. by 8 cm. will usually grow about four loopfuls of typhoid bacilli if the circumference of the loop measures 3 mm. in outside diameter. Four c.c. of sterile Dunham's solution were added to each blood serum tube after the typhoid bacillus had been allowed to develop for twenty-four hours. The growth from the surface was thoroughly mixed with the sterile Dunham's solution, and each cubic centimeter of this suspension, therefore, equaled one loopful of a twenty-four-hour slanted blood serum culture of the typhoid bacillus."

Bacillus No. 1 and bacillus No. 4 which we obtained from the Johns Hopkins Hospital were found to pro-

TABLE No. 5.

| Experiments in Bacteriolysis with Serum from First and Second Bleeding. All + 3 Loopfuls of Sterile Bouillon | Colonies in Agar Plates. | | | |
|---|---|---|---|---|
| | No hours. | 3 hours. | hours. | 21 hours. |
| 1. 1 c.c. salt solution + 1/10 c.c. immune pig serum, drawn on Sept. 20, + laboratory typhoid | 180 | 720 | 405 | Sterile. |
| 2. 1 c.c. salt solution + 1/10 c.c. heated immune serum. Sept. 20 + laboratory typhoid | 220 | 348 | 525 | " |
| 3. 1 c.c. salt solution + 1/100 c.c. immune hog serum. Sept. 20 + laboratory typhoid | 435 | 360 | 330 | 1800 |
| 4. 1 c.c. salt solution + 1/100 c.c. heated immune serum of Sept. 20 + laboratory typhoid | 288 | 150 | 750 | 9000 |
| 5. 1 c.c. salt solution + 1/1000 c.c. immune serum + laboratory typhoid | 300 | 344 | 150 | 2400 |
| 6. 1 c.c. salt solution + 1/1000 c.c. heated immune serum + laboratory typhoid | 510 | 268 | 675 | 4200 |
| 7. 1 c.c. salt solution + 1/10000 c.c. immune serum + laboratory typhoid | 600 | 390 | 300 | 6000 |
| 8. 1 c.c. salt solution + 1/10000 c.c. heated immune serum + laboratory typhoid | 350 | 450 | 710 | 3600 |
| Experiments on Serum from Bleeding of Oct. 15, or Second Bleeding. | | | | |
| 9. 1 c.c. salt solution + 1/10 c.c. of immune serum No. 2 of second bleeding + laboratory typhoid | 960 | 15 | *Sterile by microscope.* | Sterile. |
| 10. 1 c.c. salt solution + 1/100 c.c. of immune serum No. 2 + laboratory typhoid | 315 | 10 | " | 1500 |
| 11. 1 c.c. salt + 1/1000 c.c. of immune serum No. 2 + laboratory typhoid | 464 | 360 | 300 | 1500 |
| 12. 1 c.c. salt + 1/10000 c.c. immune serum No. 2 + laboratory typhoid | 276 | 600 | 300 | 9000 |
| 13. 1 c.c. salt + 3 loops bouillon + laboratory typhoid | Control 950 | 950 | 1050 | 6300 |

TABLE No. 6.

| Showing the Bacteriolytic Effect on Races of Typhoid Not Used in Immunizing the Hog. All + 3 Loops Bouillon. | Colonies in Agar Plates. | | | |
|---|---|---|---|---|
| | No hours. | hours. | hours. | 24 hours. |
| 1. 1 c.c. salt solution + 1/10 c.c. serum No. 2 + Wassermann typhoid | 840 | 480 | 2500 | 180 |
| 2. Same + 1/10 c.c. heated serum No. 2 + Wassermann typhoid | 1200 | 1050 | 1570 | 30 |
| 3. 1 c.c. salt solution + 1/100 c.c. No. 2 serum + Wassermann typhoid | 1800 | 840 | 1300 | 1800 |
| 4. 1 c.c. salt solution + 1/100 c.c. serum No. 2 heated + Wassermann typhoid | 600 | 1200 | 570 | 6000 |
| 5. 1 c.c. salt solution + 1/10 c.c. serum No. 2 + orchitis typhoid | 1200 | 1350 | 1390 | Sterile. |
| 6. 1 c.c. salt solution + 1/10 c.c. heated serum No. 2 + orchitis typhoid | 1380 | 900 | 2040 | 60 |
| 7. 1 c.c. salt solution + 1/100 c.c. serum No. 2 + orchitis typhoid | 1500 | 1200 | 1500 | 4800 |
| 8 1 c.c. salt solution + 1/100 c.c. heated serum No. 2 + orchitis typhoid | 1500<br>900 | 1500 | 900 | 1800 |
| 9. 1 c.c. salt solution + 1/10 c.c. serum No. 2 + typhoid from spleen | 540 | 1500 | 1600 | 9000 |
| 10. 1 c.c. salt solution + 1/10 c.c. serum heated No. 2 + typhoid from spleen | 12000 | 12000 | 830 | 510 |
| 11. 1 c.c. salt solution + 1/100 c.c. serum No. 2 + typhoid from spleen | 480 | 600 | 760 | 12000 |
| 12. 1 c.c. salt solution + 1/100 c.c. serum No. 2 heated + typhoid from spleen | 540 | 900 | 2100 | 13200 |
| 13. 1 c.c. salt solution + orchitis typhoid | 1080 | 1200 | 1830 | 5400 |
| 14. 1 c.c. salt solution + spleen typhoid | 540 | 390 | 900 | 30000 |

duce fatal purulent peritonitis in doses of 2 cubic centimeters, when injected intraperitoneally into guinea-pigs weighing about 300 grams. A subcutaneous injection of 1.0 c.c. and 0.5 c.c. of a curative serum into each of three guinea-pigs protected these six animals against 2 c.c. of the bacillus No.1, and bacillus No. 4 injected intraperitoneally twenty-four hours later.

In order to determine whether the bacilli Nos. 1 and 4 were virulent and fatal for guinea-pigs in smaller doses than 2 c.c., two animals were inoculated with 1 c.c. of bacillus No. 1, and three animals were inoculated in the abdominal cavity with 0.5 c.c. of this bacillus. Similar inoculations were also made with bacillus No. 4. All of these animals died in from twenty-four to forty-eight hours of typical experimental typhoid fever except two guinea-pigs. One of these had received .5 c.c. of bacillus No. 1, and the other had received .5 c.c. of bacillus No. 4. From these experiments it was assumed that the serum would protect guinea-pigs against four times the minimal fatal dose of these typhoid bacilli. Five pigs were inoculated intraperitoneally with .5 c.c. of bacillus No. 1, and two died in twenty-four hours, while the other three died in from four to nine days of experimental typhoid infection. This confirmed the minimal fatal dose is .5 c.c.

As we wished to see whether smaller doses of the serum would protect guinea-pigs against the typhoid bacillus No. 1, we injected .1 c.c. of serum No. 3 subcutaneously, and in two days these animals were inoculated with doses beginning with .5 c.c. of typhoid bacilli and increasing to 4 c.c. All died in twenty-four hours except the .5 c.c. and 1 c.c. pigs, which survived. This showed that .1 c.c. of serum subcutaneously would protect only against twice the minimal fatal dose.

In order to increase the virulence of the laboratory stock culture of the typhoid bacillus, we introduced it inclosed in celloidin capsules within the peritoneal cavity of the guinea-pig, and allowed it to remain there for two weeks. This reduced the minimal fatal dose from 1 c.c. to .3 c.c., and this was the most virulent organism which we could obtain. We were compelled, therefore, to use much larger doses for comparative experiments than Abell and Loeffler, who used bacilli fatal in doses of 1/50 c.c.

Their experience also showed that if the serum was injected into the peritoneal cavity that it would protect against larger doses of typhoid bacilli than would subcutaneous injections of serum.

On July 25, 1901, five guinea-pigs were given .1 c.c. of serum No. 3 intraperitoneally, and in two days these animals were given .3-.5, .7-.8, and 1 c.c. of the bacillus whose minimal fatal dose was .3 c.c. All of the animals remained well for two weeks. On August 6 a second series of animals were given a similar dose of serum, and in two days they were given, respectively, 1 c.c., 1.5 c.c., 2 c.c., 2.5 c.c., and 3 c.c. of the same bacillus. The first two animals survived, showing that .1 c.c. of the serum No. 3 would protect against five times the minimal fatal dose of the typhoid bacillus, since this dose was .3 c.c. Five guinea-pigs inoculated with the same doses of bacilli after protection with .5 c.c. of serum gave even better results.

Only the 2.5 c.c. and 3 c.c. pigs died, showing that .5 c.c. of serum injected intraperitoneally will protect against about seven times the minimal fatal dose.

These animal experiments might be summarized by stating that the subcutaneous injection of the serum in doses of from 1-600 to 1-800 of the body weight will protect guinea-pigs against four times the minimal fatal dose of intraperitoneal injection with the typhoid bacillus. The injection of 1-3000 to 1-4000 of the serum by weight into the abdominal cavity will protect against five times the minimal fatal dose, and a dose of 1-600 to 1-800 of the body weight will protect against seven time the minimal fatal dose of the typhoid bacillus.

It was not expected that this serum would exhibit any marked antitoxic properties, but in order to determine this the typhoid bacillus was grown on blood serum and destroyed by a temperature of 60 C. for one hour. Five guinea pigs were inoculated with the usual suspension of 0.3-0.5, 0.8, 1 and 1.2 c.c of dead bacilli, and the last two animals died in twenty-four hours, while the others survived. The minimal fatal dose was therefore 1 c.c. of dead bacilli. Ten pigs were given 0.5 of serum, and were then inoculated with doses of dead bacilli varying from 0.8 c.c. of the suspension from the blood serum to 2.5 c.c. The two pigs given 2.5 c.c. and one pig given 1.5 c.c. died of toxemia in twenty-four hours, but the seven other pigs which had been given 2 c.c., 1.5 c.c., 1 c.c., and 0.8 c.c. dead bacilli survived the inoculation. The serum seems to protect against about twice the fatal dose of dead typhoid bacilli.

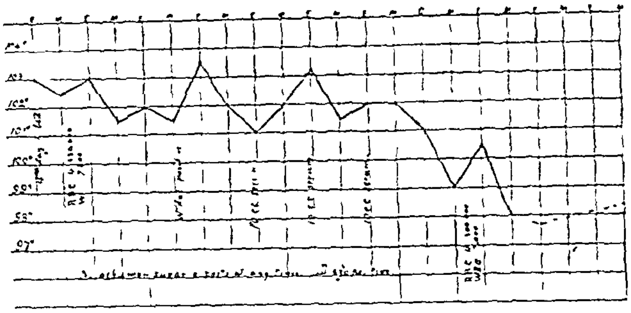

Chart 1.

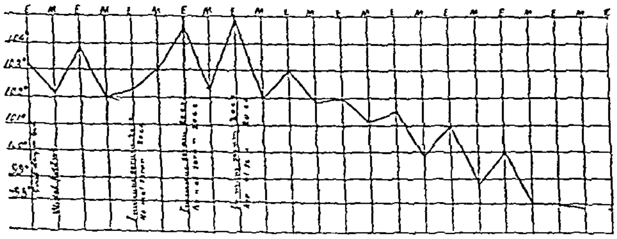

Chart 2.

In addition to the above experiments, a number of tests were performed with polyvalent serum No. 1 from hog No. 4. The same suspension of a twenty-four hour blood serum growth of the typhoid bacillus in 4 c.c. of salt solution was used, and guinea-pigs were inoculated intraperitoneally with varying doses until the minimal fatal dose was found. The Wassermann bacillus was fatal to guinea-pigs weighing from 400 to 500 grams in doses which averaged about 100 cubic millimeters. One pig died of typical typhoid peritonitis from an intraperitoneal dose of 50 cubic millimeters, but 4 others remained well, while of 4 pigs all died when 100 cms. were used. One or two pigs recovered from 200 cms., while others died, and the minimal fatal dose of 100 cms. is only approximate. *Three hundred* cubic millimeters were invariably fatal.

Considering this as the correct minimal fatal dose, we injected 0.1 c.c. of a serum heated at 56 C. for one hour into the peritoneal cavity of a guinea pig, and similar doses of trikresolized and non-trikresolized serum were also used on other guinea-pigs. Two days later all of these animals received 1.5 c.c. of the Wassermann bacillus intraperitoneally, but they all remained well for two weeks.

These injections showed therefore that the polyvalent serum protected against 5 times the minimal fatal dose of the typhoid bacillus.

BACTERIOLYTIC ACTION OF THE IMMUNE SERUM.

A large number of tests were made with polyvalent serum No. 1, in order to test its effect in destroying the typhoid bacillus both alone and in contact with other normal sera of various animals. The animals were bled and the serum obtained free from contamination, although no trikresol was used, and the following technic was employed in testing the effect of the serum on *Bacillus typhosus*.

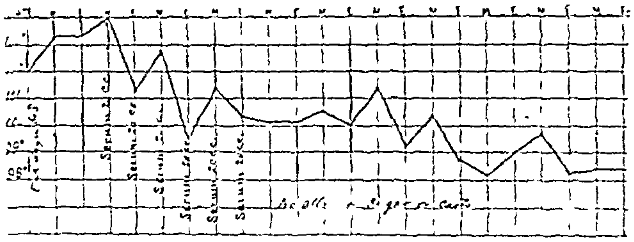

Chart 3.

The various types of the typhoid bacillus were grown for twenty-four hours on the slanted surface of Loeffler's blood serum in a small test tube measuring 10 by 2 cms., and one loopful of the growth from a standard loop measuring 3 mms. in outside diameter was placed in 10 cubic centimeters of normal salt solution. Two loopfuls of this suspension was always transferred to the various combinations of the sera. One loopful was always introduced into the melted agar used for the comparative plate cultures, and these were made at once, and at the end of 3-6, and twenty-four hours. The heated serum was exposed to 56 to 58 C. for one hour. This method forms a splendid way of estimating the destructive action of various sera on bacteria.

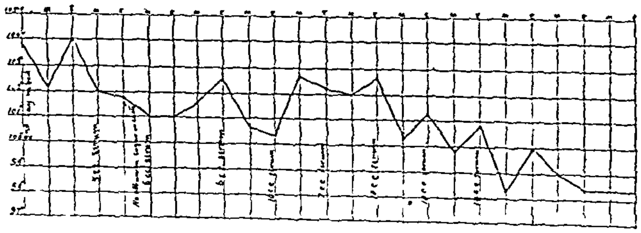

Chart 4.

The preceding table No. 3 shows that both the Wassermann and the laboratory typhoid bacillus No. 6 were practically destroyed by 1 cubic centimeter of the immune hog serum even when heated, as shown by Nos. 1, 2. 3 and 4. It would seem from these experiments that the serum of the hog contains a complement which is not destroyed by 56 C. Nos. 5 and 6 show that unheated and, of course, heated rabbits' serum after twenty-four hours on ice, in which time the serum separated from the clot, is not destructive to the typhoid bacillus. It is interesting to note in 7 and 8 that heated immune serum will only inhibit the bacilli if 1/20 part of normal rabbit's serum be added. Equal parts of immune and rabbit's serum are not destructive. Experiments 10 and 11 show that small quantities of immune serum cannot make effective combinations with rabbit complement in destroying the typhoid bacillus, although later experiments demonstrated that these small amounts of immune serum were effective when mixed with bouillon, human serum, and dog's serum. The immune serum was used from the first bleeding of the hog, and the plates were kept forty-eight hours before counting them.

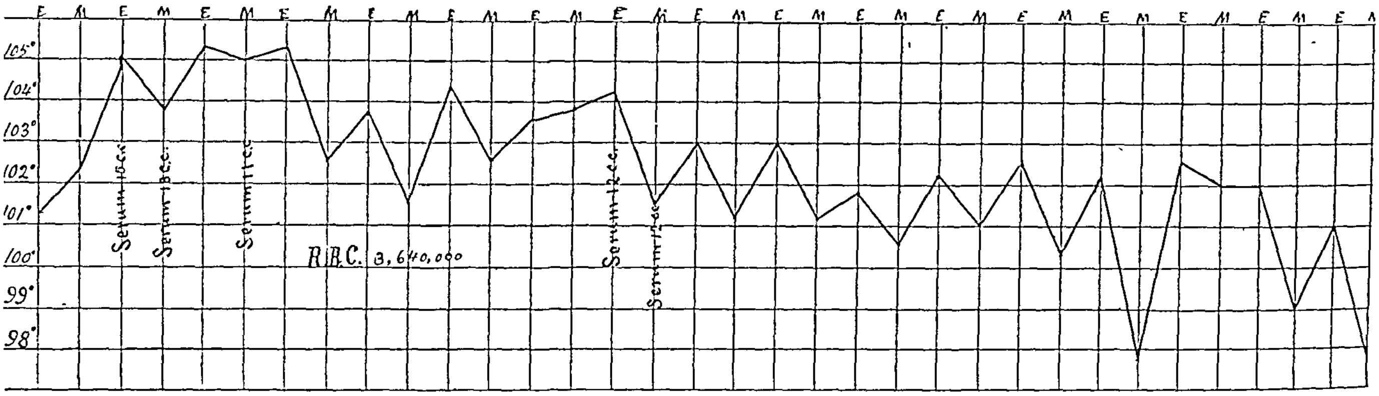

Chart 5.

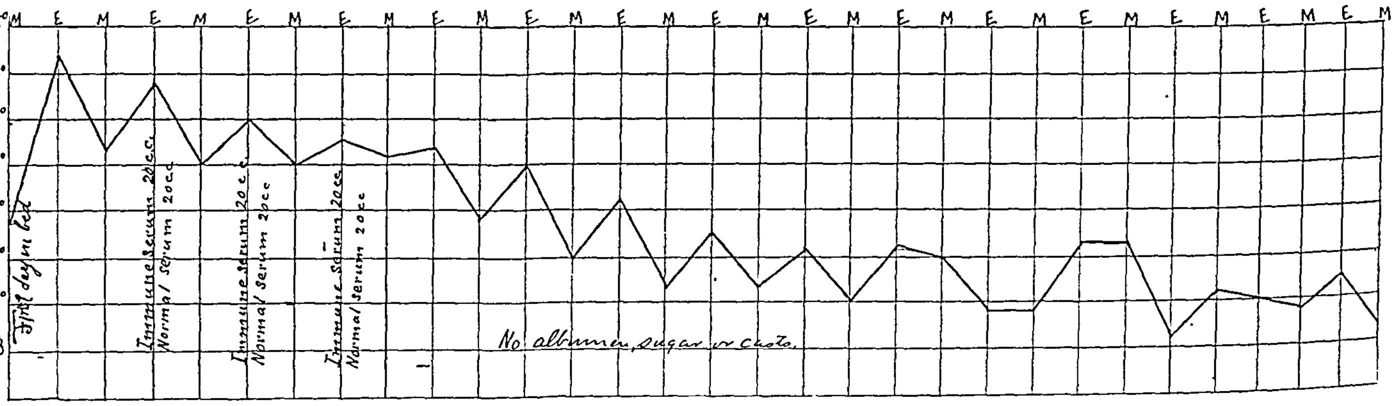

Chart 6.

Table No. 3 also shows that dog serum is absolutely destructive to different races of the typhoid bacillus, as shown by 12 and 13, but 14 to 17 show that the immune body can not form an effective combination in heated serum. Experiment 19 shows a curious phenomenon, namely, that although unheated immune serum in heated dog's serum is not destructive to the typhoid bacillus (see 16), yet if the immune serum is also heated to 56 C. it forms a combination with the heated dog's serum which almost entirely destroys the bacilli. Greater dilutions than 1 to 10 were not effective. Twenty-two, 23 and 24 simply show again the bacteriolytic effect of unheated dog serum on the typhoid bacillus.

On examining the preceding table No. 4, it will be seen that normal hog serum, and, of course, heated serum, are not destructive to the typhoid bacillus, as shown by 1, 2, 3 and 4. Nos. 5, 6, 7 and 8 all show that varying amounts of hog and immune serum are equally as ineffective, but No. 7 shows a curious phenomenon. Although the immune serum and the complement of hog se[illegible] will not act against the typhoid bacillus, yet when the immune serum is heated to 56 C. it forms a combination with the hog serum which almost completely destroys the bacilli. Smaller quantities than 1/10 of a c.c. were not effectual. All of the other experiments show that various combinations of normal hog serum, and immune serum are not destructive, but No. 12 shows that heated immune serum is destructive to these bacteria. The effect of heated serum in destroying the typhoid bacillus may be due to setting free the complement by heat, as Kyes found in regard to snake venom complement.

Table No. 5 shows the comparative effect of serums from the first and second bleeding of the hog. This bleeding has been previously described in the section describing the injections of the hog. These had been kept on cold storage for some time, and seem to have lost part of their strength, although 1/10 of a c.c. of both heated and unheated serum were still effective in destroying typhoid bacilli.

The typhoid bacillus (see table No. 6) from a typhoid orchitis, and from the spleen of a fatal case were tested along with the Wassermann organism in order to see whether the serum was destructive to a typhoid organism which had not been used in immunizing the animal. It will be seen that Nos. 5 and 6 give the most satisfactory bacteriolytic results, and this was exerted on an organism which had not been used for injecting the hog. It had little or no effect on the organism isolated from the spleen, as shown by Nos. 9 and 10.

### RESUME OF THE BACTERIOLYTIC ACTION OF THE SERUM.

These experiments might be summarized by stating that one cubic centimeter of immune serum, even after being heated to 58 C., was completely destructive to the typhoid bacillus, while control cultures in twenty-four hours showed from 50,000 to 100,000 colonies. Normal hog serum was not destructive to *Bacillus typhosus*. The tests also showed that similar results were obtained if either heated or unheated immune serum in quantities as small as 1/10 of a cubic centimeter were added to 9/10 of a c.c. of bouillon, or salt solution and bouillon containing the typhoid bacillus. Heating to 58 C. did not destroy the bacteriolytic effect of the serum, as the plates were absolutely sterile, while the controls numbered about 50,000 colonies.

Heated and unheated serum 1/10 of a c.c. plus 9/10 c.c. of bouillon were also used on two cases of typhoid bacilli which were not used in producing the serum, and they completely or almost completely destroyed the organism in twenty-four hours. Even equal parts of human and immune hog serum showed no hemolysis, and the immune serum was bacteriolytic when mixed with human serum in 1 part to 9 of human serum.

### HEMOLYTIC EXPERIMENTS.

Experiments in hemolysis were performed with human blood from the placenta. The blood was washed three times in normal salt solution after centrifugalizing each time and pouring off supernatant fluid.

One to 12 inclusive, after three hours in incubator at 37 C., showed a clear supernatant fluid, and bright arterial red sediment. This examined under microscope consisted of normal red blood corpuscles, 16 to 19, inclusive, showed similar condition. Thirteen, 14 and 15 showed a darker venous red sediment which resembled a partially decomposed clot, and under the microscope the red blood corpuscles were of normal appearance, but showed distinct agglutination.

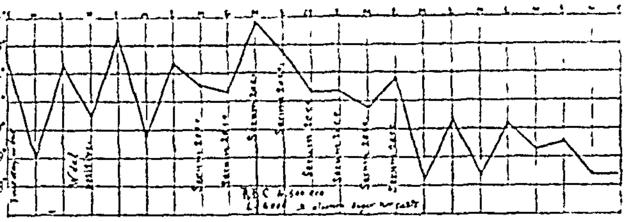

Chart 7.

All were then placed in incubator for five hours and condition was the same except 13, 14 and 15.

TABLE No. 8.

| Human Serum from Umbilical Cord. | Colonies in Agar Plates. | | |
|---|---|---|---|
| | No hours. | 6 hours. | 24 hours. |
| 1. 0.5 c.c. serum + laboratory typhoid + 0 5 c.c. salt solution.... | 1020 | Sterile. | Sterile. |
| 2. 0.5 heated serum 58 C. + laboratory typhoid + 0.5 c.c. salt solution .................. | 600 | 9000 | Innumerable. |
| 3. 0.5 c.c. human serum + 0.01 c.c. immune serum + 0.5 c.c. salt + laboratory typhoid.................. | 420 | Sterile. | Sterile. |
| 4. 0.6 c.c. serum + 0.01 c.c. immune serum + 0.5 c.c. salt + laboratory typhoid.................. | 400 | " | " |
| 5. 0.7 c.c. serum + 0.01 c.c. immune serum + 0.5 c.c. salt + laboratory typhoid.................. | 750 | " | " |
| 6. 1 c.c. serum + 0.1 c.c. immune + laboratory typhoid......... | 600 | " | " |
| 7. 0.5 immune serum + 0.01 c.c. human + 0.5 c.c. salt + laboratory typhoid .................. | 180 | 750 | " |
| 8. 0.6 immune serum + 0.01 c.c. human + 0.5 c.c. salt + laboratory typhoid .................. | 600 | 300 | " |
| 9. 0.8 immune serum + 0.01 c.c. human + 0.2 c.c. salt + laboratory typhoid.................. | 720 | 75 | " |
| 10. 1 c.c. immune serum + 0.01 c.c. human + 0.2 c.c. salt + laboratory typhoid.................. | 600 | 345 | " |
| 11. 1 c.c. human serum + 0.1 c.c. immune serum + laboratory typhoid .................. | 600 | Sterile. | " |
| 12. 1 c.c. heated human serum + 0.1 c.c. immune serum + laboratory typhoid .................. | 750 | 800 | 5000 |
| 13. 1 c.c. human serum + 0.01 c.c. immune serum + laboratory typhoid .................. | 450 | Sterile | Sterile. |
| 14. 1 c.c. human heated serum + 0.01 c.c. immune serum + laboratory typhoid .................. | 3000 (½ c. c.) | 6000 | Innumerable. |
| 15. 1 c.c. salt solution + 1/10 c.c. immune serum + laboratory typhoid .................. | 1200 | 1200 | 12 |

A microscopic examination of the sterile tubes shows no bacteria present showing complete bacteriolysis.

Three cubic centimeters were then placed in each of 15 tubes. The fluid represented 2 c.c. of pure blood + 8 c.c. of sterile solution.

Varying amounts of serum heated at 56 C. sterile serum No. 2, and trikresolized serum No. 2 were added to these tubes; they were then placed in the thermostat for three hours, and then placed on ice for 12 hours.

Table No. 7.—Hemolytic Work. Human Blood.

| | Hemolysis. |
|---|---|
| 1. 3 c.c. blood + 0.03 c.c. of heated serum............... | 0 |
| 2. 3 c.c. blood + 0.3 c.c. of heated serum............... | 0 |
| 3. 3 c.c. blood + 0.6 c.c. of heated serum............... | 0 |
| 4. 3 c.c. blood + 1.5 c.c. of heated serum............... | 0 |
| 5. 3 c.c. blood + 3 c.c. of heated serum............... | 0 |
| 6. 3 c.c. blood + 0.03 c.c. of serum No. 2............... | 0 |
| 7. 3 c.c. blood + 0.3 c.c. of serum No. 2............... | 0 |
| 8. 3 c.c. blood + 0.6 c.c. of serum No. 2............... | 0 |
| 9. 3 c.c. blood + 1.5 c.c. of serum No. 2............... | 0 |
| 10. 3 c.c. blood + 3.00 c.c. of serum No. 2............... | 0 |
| 11. 3 c.c. blood + 0.03 c.c. trikresolized serum No. 2...... | 0 |
| 12. 3 c.c. blood + 0.3 c.c. trikresolized serum No. 2...... | 0 |
| 13. 3 c.c. blood + 0.6 c.c. trikresolized serum No. 2...... | ? |
| 14. 3 c.c. blood + 1.5 c.c. trikresolized serum No. 2...... | ? |
| 15. 3 c.c. blood + 3 c.c. trikresolized serum No. 2...... | ? |
| 16. 3 c.c. blood + 0.003 c.c. trikresolized serum No. 2...... | 0 |
| 17. 3 c.c. blood + 0.006 c.c. trikresolized serum No. 2...... | 0 |
| 18. 3 c.c. blood + .009 c.c. trikresolized serum No. 2...... | 0 |
| 19. Control. ............................................ | 0 |

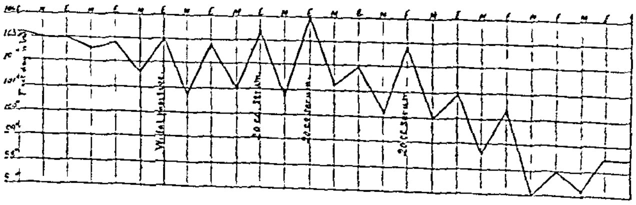

Chart 8.

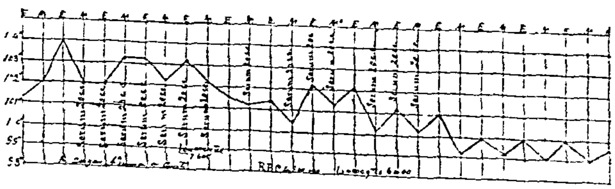

Chart 9.

In these the supernatant fluid was cloudy and the sediment chocolate brown, and on shaking up the fluid it became chocolate brown.

Under the microscope in 13, 14 and 15, about one-third of the red blood cells consisted of a clear colorless disc containing a few scattered yellow granules of hemoglobin. This effect is probably due to the trikresol, and not to the serum.

After twelve hours on ice the condition was the same. These experiments show that the immune hog serum has no injurious effect on red blood corpuscles, and the normal number of red blood corpuscles in the counts on our clinical cases also bears out this point.

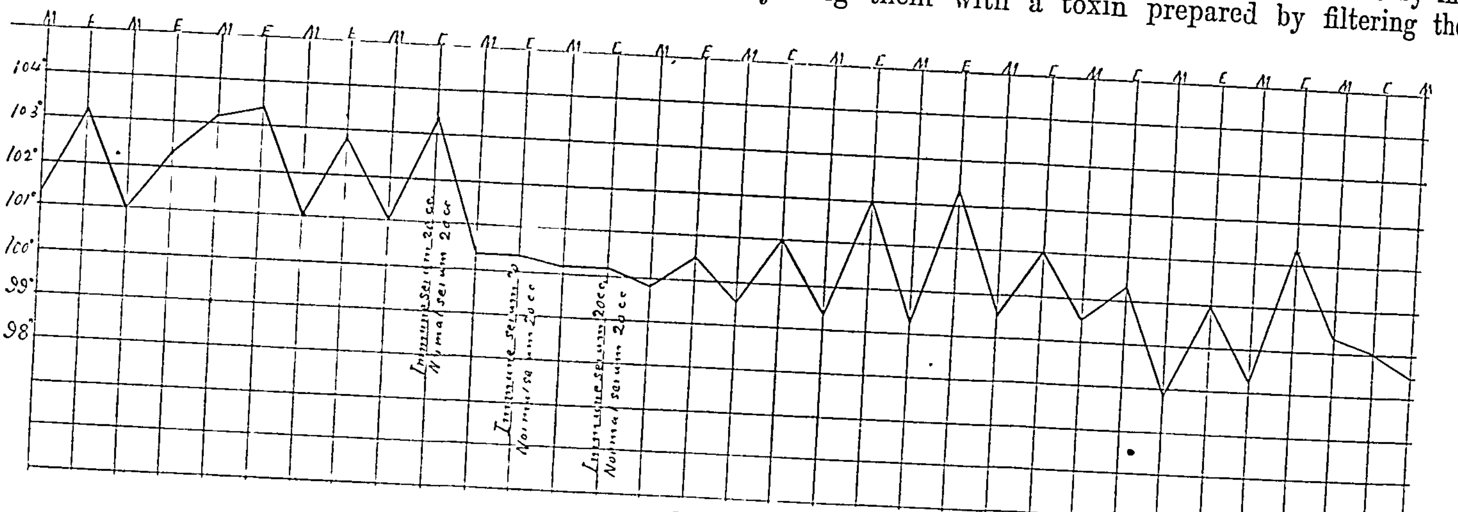

Chart 10.

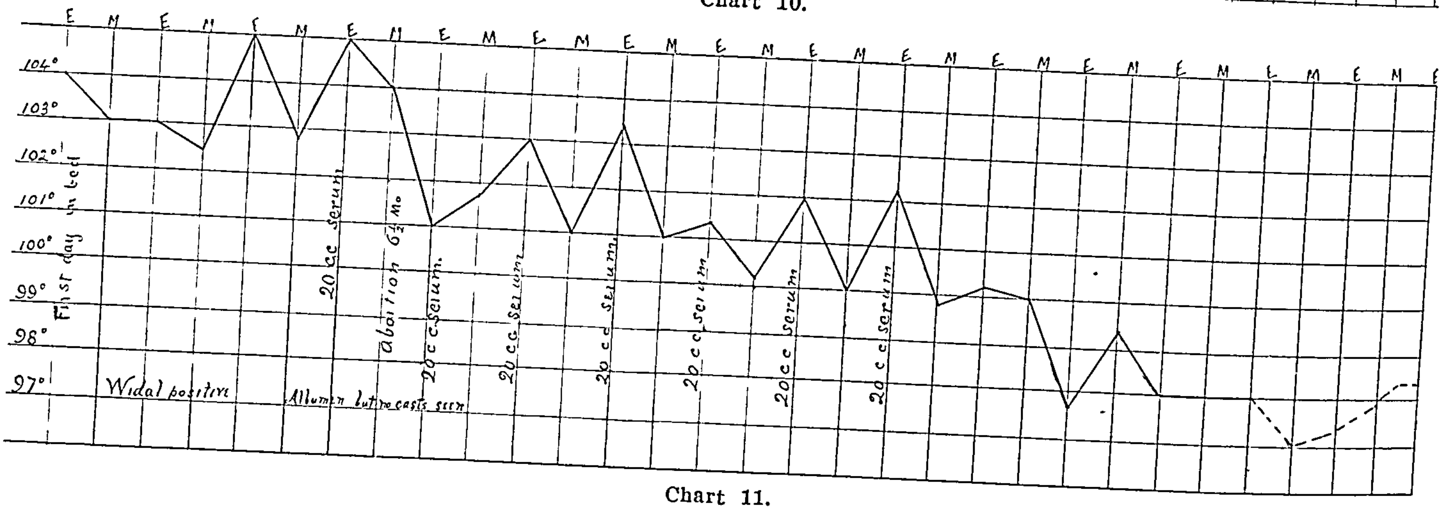

Chart 11.

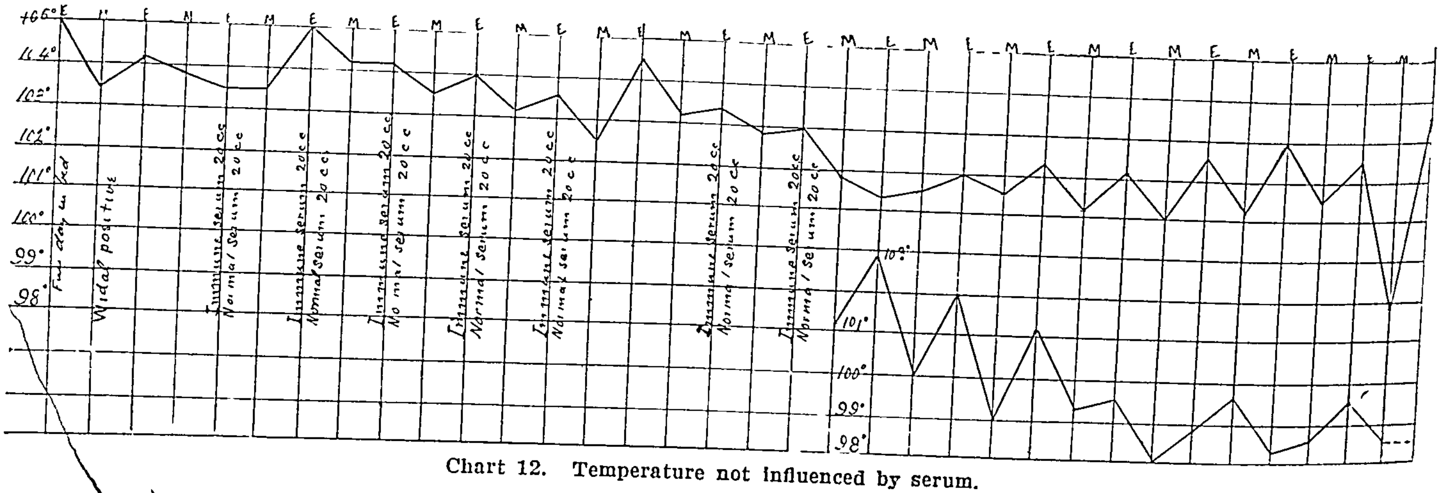

Chart 12. Temperature not influenced by serum.

Table No. 8 shows that human serum is quite destructive to the typhoid bacillus, and that quantities varying from 1/10 to 1/100 of a c.c. of immune hog serum find a congenial complement in the human serum. This also shows that one-tenth part of the immune hog serum does not cause any deviation or side-tracking[8] of the complement, by means of an excessive amount of immune body, or amboceptors. No. 15 shows the destructive effect of 1/10 c.c. of immune serum alone.

### CLINICAL OBSERVATIONS.

Before recording our own observations we shall briefly record the work which has been previously performed by others in treating cases of typhoid fever with a curative serum.

Chantemesse[9] prepared a serum from horses by injecting them with a toxin prepared by filtering the fluid cultures. This serum in doses of .01 of a cubic centimeter prolonged the lives of guinea-pigs injected with varying doses of the soluble filtrate. He thinks that this serum is antitoxic, since its injection renders animals more resistant toward the soluble poison.

Chantemesse found that the general fatality from typhoid fever in the Paris hospitals was about 19 per cent., but in 186 cases which were treated with the serum the fatality was only 3 per cent. He attributed this reduction to the use of the serum. The seven fatal cases had either peritonitis, hemorrhages or perforation.

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[8] As for us, I know this term was prepared by Dr. Harry T. Marshall, of Johns Hopkins University.

[9] Chantemesse: La Presse Méd., No. 103, Dec. 24, 1902.

Professor Tavel[10] of Berne has also used an immune serum in the treatment of typhoid fever, which is prepared by incubating 1.5 liters of a bouillon typhoid culture for two weeks, and then adding 0.5 per cent. of carbolic acid. This kills the bacilli and releases the intracellular poisons. Two horses were injected with gradually increasing doses of this bouillon until 150 c.c. could be taken. Later mixed dead cultures of four different races of typhoid bacilli were used, and at last living mixed cultures were injected. The serum was thus made polyvalent.

Tavel[10] has recorded 4 cases in which he used from three to six injections of his serum. In all of these cases the plateau stage of the fever was greatly lessened, and this was rapidly followed by the stage of decline. The pulse and respiration also fell with the temperature, and no unfavorable symptoms were noted. These four cases reached a normal temperature in 18, 20, 18, and 13 days respectively. He noted a fall of temperature often twenty-four hours after the injection of the serum, but found that a future rise of temperature had to be again combated by further injections.

Our series included 23 cases with two deaths. Autopsies were not obtained in either of the fatal cases.

Case 1.—The first was a boy of 14, who had been in the hospital ten days when the injections were begun. He received eight doses of 10 c.c. each in four days. After the serum treatment began the boy developed a bullous dermatitis. The injections appeared to cause some decline in temperature, but in the middle of his third week in the hospital he developed otitis media followed by streptococcus septicemia, which proved fatal. (Chart 1.)

The other fatal case was seen in private practice.

Case 2.—Man, aged 44, overfat, a civil engineer. He was seen in the beginning of his attack, having a temperature of 100 degrees.

*Treatment.*—Two days later his blood gave a distinct and prompt Widal reaction, and on the following day serum treatment was begun. His urine was not examined before the first dose of serum was injected, but was found to contain albumin and casts immediately after. He received in five days six doses of serum, 90 c.c. in all. After the third injection of serum the temperature began to drop and we were inclined to think that good results were to follow, but the temperature rose to 103 degrees on the thirteenth day in bed and the fifth day after the last injection. Intestinal hemorrhages appeared on the fourteenth day in bed. There were several copious losses on this day. Two days later hemorrhage reappeared, and on the night of the nineteenth day in bed he died.

Among the 21 cases ending in recovery, there were 15 in which we considered that the influence of the serum contributed to the favorable result. The temperature charts of 10 of these cases are shown. The cases in which no effect for good or evil was observed were 6 in number, and one of these is illustrated by a temperature chart.

One of the distinctly favorable cases was that of a young married woman of 23, who was six and a half months' pregnant. She aborted on the evening of the day when the first injection was given, but completed her defervescence in fourteen days. (Chart 2.)

One of the cases admitted to Johns Hopkins on the fourth day in bed was defervescent in ten days after admission, or on the fourteenth day in bed. No unfavorable effects on the kidneys or blood were reached by urinalysis or blood counts in any of the cases. The average period from admission to defervescence was in thirteen favorable cases, 12.6 days.

The laboratory experiments coincided with the clinical observations that the immune hog serum is not hemolytic for human blood. In one or two instances we encountered discouragement from associated clinicians who feared injury to the kidneys or hemolysis from the use of such large amounts of serum. In one case we stopped the serum in deference to the suspicion that it caused collapse. This patient was a sailor who came to the City Hospital in an exceedingly feeble state, having had diarrhea on ship board for two weeks. He was exceedingly depressed after each bath. The use of serum was, however, resumed after an interval of days, though tubbing was not resumed. The case appeared to be one of those favorable to the use of the serum.

### CONCLUSION.

In conclusion, we believe that by the use of this serum the febrile period may be shortened, and the daily variation may be favorably modified.

### DISCUSSION.

Dr. Charles C. Yarbrough, Detroit—In the experiments on hogs, was any air injected? If so, what results were observed from it?

Dr. William Royal Stokes—As we could not always shut off the injection just at the moment because it went in under rather heavy air pressure, air certainly got in; we noted an emphysematous condition of the tissues at times, but we did not see the slightest unfavorable results. It is hard to kill a hog.

Dr. Charles C. Yarbrough—The general opinion among the profession is that the injection of air is very dangerous. The average physician is very careful when he makes hypodermic injections, especially injections of serum, to see that every particle of air is expelled from the syringe before making the injection. A large number have a great dread of injecting even the minutest quantity of air. This dread, I believe, is wholly unfounded.

Dr. Joseph McFarland, Philadelphia—I have intentionally injected air under the skin of 16,000 guinea-pigs without noticing any unfavorable result. I did that in order to drive out of the hypodermic syringe every particle of mixture of diphtheria toxin and antitoxin in order to test the value of it.

## LEAD POISONING.

### A STUDY OF THE GASTRIC CONTENTS IN TWELVE CASES.*

JOSEPH SAILER, M.D., and JOHN M. SPEESE, M.D.
PHILADELPHIA.

Last winter during my service at Blockley a patient was admitted suffering from severe intestinal colic due to chronic lead poisoning. In the hope of obtaining some information on the nature of the colic, a test-meal was obtained, and the findings were so interesting that, at my suggestion, my resident physician, Dr. John Speese, obtained test-meals of all the cases of lead poisoning that were available during the rest of the winter. The results were so nearly uniform that it seems unlikely that a more extended series of investigations will show any material difference. The technic was as follows: Usually with, sometimes without, a preliminary washing, the patient was given a test-meal of two slices of bread and about twelve ounces of water. One hour after the patient commenced eating, the stomach contents were withdrawn by aspiration, measured and tested for free acid with Congo red, then filtered and examined. The total acidity was tested with decinormal soda solution, using phenolphthalein as an indicator, the first permanent pink being employed to determine the degree of acidity. Free hydrochloric acid was tested for qualitatively by Congo red and phloroglucin vamillin, and quantitatively by dimethylamidoazobenzol occasionally using Günzberg's reagent as a control. Lactic acid was tested for with Uffelmann's reagent, using the reaction produced in another tube with a dilute solution of lactic acid for comparison. Pepsin was estimated by a slight modification of Hammerschlag's method, as follows: The white of one egg (about 30 cm.) was dissolved in 1,000 c.c. of 0.4 per cent. HCl. To 10 cm. of this solution 5 cm. of filtered gastric juice were added, and to another 10 cm., 5 cm. of distilled water. The tubes were plugged, placed in the incubator for one hour, and the percentage of albumin estimated by centrifugation after precipitation with acetic acid and potassium ferrocyanid, according to Purdy's method. Hammerschlag's method has been subjected to a considerable degree of criticism, and has been as warmly defended. Undoubtedly, it does not give accurate, merely approximate results, but no method hitherto devised for the estimation of pepsin that is clinically applicable does any more than this. As a clinical test it certainly seems satisfactory. Dr. Speese and Dr. Lavenson performed it nearly 200 times last winter on different cases of gastric disease, and in nearly all instances it conformed very closely to what would theoretically have been expected. Most conservatively estimated, it suffices to show at least three degrees of peptic digestion, i. e., "none," " little" and "much," and its most enthusiastic supporter will hardly claim that the range of error is less than 10 per cent. in either direction. It can not, therefore, be considered scientifically accurate, but absolute accuracy is not essential. In all cases microscopic examination was made for the presence of the Oppler-Boas bacillus, and wherever possible the blood stained for basophilic degeneration, but this, unfortunately, could not be done in every case. The cases are as follows:

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[10] Tavel: Schweizerisches Serum und Impf.-Inst., März, 1899.

* Read before the medical section of the College of Physicians.

Case 1.—J. S., male, aged 26, Russian, a painter. A satisfactory history was not obtainable. The symptoms were a blue line on the gums, constipation, abdominal pain and vomiting. Blood: Hemoglobin, 68 per cent; white blood cells, 5,000; red blood cells, 3,100,000. Granular degeneration of reds present.

GASTRIC ANALYSIS.

| | First. | Second. |
|---|---|---|
| Total acidity | 17 | 10 |
| Free HCl | Absent | Absent |
| HCl deficit | 10 | 13 |
| Lactic acid | Present | Present |
| Pepsin | 50% | 20% |
| Oppler-Boas | Negative | Negative |

Case 2.—P. C., male, aged 40, leadworker. He had lead colic four years ago, when he stopped working in lead; he returned to it three weeks ago, with a recurrence of symptoms. These were constipation, pain in the abdomen, blue line on the gums and nausea.

GASTRIC ANALYSIS.

| | |
|---|---|
| Total acidity | 10 |
| Free HCl | Absent |
| HCl deficit | 10 |
| Lactic acid | Present |
| Pepsin | 8% |
| Oppler-Boas | Negative |

Case 3.—T. M., aged 44, white, paint mixer. He had had lead poisoning in 1899 and a second attack in 1902, with wrist-drop, which became bilateral in 1904. There was abdominal pain, constipation, fetid breath, a blue line on the gums, and wrist-drop. After one hour's digestion of an Ewald meal. 3 ounces were recovered containing some undigested food, mucus and blood.

GASTRIC ANALYSIS.

| | |
|---|---|
| Total acidity | 8 |
| Free HCl | Absent |
| HCl deficit | 12 |
| Lactic acid | Present |
| Pepsin | 10% |
| Oppler-Boas | Negative |

Case 4.—F. R., aged 44, white, Ireland, a painter. He had had several previous attacks of lead colic and on admission complained of pain in the abdomen and constipation. There was a blue line on the gums and anemia. The blood showed granular degeneration of red blood cells. The Ewald meal was given; one hour's digestion; two ounces withdrawn containing a few particles of undigested food, no blood nor mucus.

GASTRIC ANALYSIS.

| | First. | Second.* |
|---|---|---|
| Total acidity | 10 | 16 |
| Free HCl | Absent | Absent |
| HCl deficit | 18 | 14 |
| Lactic acid | Present | Present |
| Pepsin | Absent | Absent |
| Oppler Boas | Negative | Negative |

* Second admission with same symptoms.

Case 5.—W. R., aged 43, white, leadworker. The symptoms were anemia, constipation, a blue line on the gums, and, in addition, acute mania. The blood showed granular degeneration of the red cells.

GASTRIC ANALYSIS.

| | |
|---|---|
| Total acidity | 6 |
| Free HCl | Absent |
| HCl deficit | 8 |
| Lactic acid | Present |
| Pepsin | 6% |
| Oppler-Boas | Negative |

Case 6.—J. C., aged 42, white, painter. The symptoms were a blue line on the gums, constipation, abdominal pain, anemia and weakness in the muscles of the arms.

GASTRIC ANALYSIS.

| | |
|---|---|
| Total acidity | 13 |
| Free HCl | Absent |
| HCl deficit | 18 |
| Lactic acid | Present |
| Oppler-Boas | Negative |

Case 7.—T. R., painter, aged 26, Philadelphia. The patient had never had symptoms of lead poisoning, although he had worked at this trade for several years. He was somewhat anemic, slightly constipated, and had a blue line on the gums. He was admitted with pneumonia, and a test meal was given as an experiment. It was retained for one hour and two and a half ounces withdrawn; it was white in color and the digestion was complete. There was no blood but some mucus.

GASTRIC ANALYSIS.

| | |
|---|---|
| Total acidity | 34 |
| Free HCl. | 25 |
| Lactic acid | Absent |
| Pepsin | 100% |
| Oppler-Boas | Neg. |

Case 8.—J. C., ward 5. He has been a lead worker for several years, although there is no history of a previous attack. He complained of pain in the abdomen, constipation; there was a blue line on the gums, loss of power in the left arm, with some atrophy of the muscles, but no wrist-drop. There was granular degeneration present in the blood; reds, 3,600,000; whites, 6,000. Toast and water, one hour's digestion, one and a half ounces recovered, partially digested, no blood, no mucus. On washing, a considerable amount of food was recovered.

GASTRIC ANALYSIS.

| | First. | Second. |
|---|---|---|
| Total acidity | 14 | 9 |
| Free HCl | Absent | Absent |
| HCl. deficit | 14 | 10 |
| Lactic acid | Present | Present |
| Pepsin | Absent | Absent |
| Oppler-Boas | Suggestive | |

Case 9.—E. S., aged 34, white, lead burner. He had never had any previous attack of lead poisoning. The symptoms began several weeks before admission. He first noticed constipation, followed by severe abdominal pain centering at the umbilicus. There was a blue line on the gums, loss of power in the left arm and hand, but no wrist-drop. He has worked

steadily at his trade for the past sixteen months. Toast and water given, digestion one hour. About an ounce recovered, consisting of a few particles of undigested food, but no blood or mucus. On washing a small amount of undigested food was recovered.

GASTRIC ANALYSIS

| | First. | Second |
|---|---|---|
| Total acidity | 12 | 11 |
| Free HCl | Absent | Absent |
| HCl deficit | 12 | 5 |
| Lactic acid | Present | Present |
| Oppler Boas | Negative | |
| Pepsin | | 7% |

The blood showed degeneration of the red blood cells.

CASE 10.—M. H., aged 46, white, Ireland. He has worked in lead and brass. He had lead poisoning one and a half years ago. Three months ago he developed pain in the abdomen, weakness in the arms and legs, and a blue line on the gums. The active symptoms of lead poisoning have disappeared, and the chief trouble at present is due to paralysis and weakness of the muscles of the arms. No granular degeneration in the blood. Ewald meal, one hour digestion, three ounces recovered. Some undigested food and mucus, but no blood.

GASTRIC ANALYSIS

| | |
|---|---|
| Total acidity | 9 |
| Free HCl | Absent |
| HCl deficit | 8 |
| Lactic acid | Present |
| Pepsin | 25% |
| Oppler Boas | Negative |

CASE 11.—J. F., white, aged 42, Ireland. He had lead poisoning five years ago, and has been a lead worker at intervals for the past seven years. He complains of general weakness, pain in the abdomen, headache, vertigo, anorexia and weakness of the wrists. Ewald meal, one hour digestion; watery contents and undigested food. No mucus or blood.

GASTRIC ANALYSIS

| | |
|---|---|
| Total acidity | 9 |
| HCl deficit | 9 |
| Lactic acid | Present |
| Pepsin | Absent |
| Oppler Boas | Negative |

CASE 12.—G. E., white, aged 39, Sweden. He had been a lead worker for three weeks, he had been very careless about his habits. He developed severe abdominal pain, which was present on admission, constipation, and had a slight blue line on the gums. His appearance was anemic. Blood: Hemoglobin 61 per cent.; red blood cells, 3,290,000; white blood cells, 11,800. Basophilic degeneration of the red cells. Ewald meal, one hour digestion. Slight amount of mucus, some undigested food, and no blood, regained. Two ounces recovered. On washing a considerable amount of food was recovered.

GASTRIC ANALYSIS

| | |
|---|---|
| Total acidity | 35 |
| Free HCl | 8 |
| Lactic acid | Negative |
| Pepsin | 40% |
| Oppler-Boas | Negative |

SUMMARY OF GASTRIC ANALYSES

| No | Total Acidity | Free Acid | HCl. Deficit | Lactic Acid. | Peptic Digestion. | Oppler-Boas | Granular Degeneration. |
|---|---|---|---|---|---|---|---|
| 7 | 31 | 25 | 0 | 0 | 100% | Neg | |
| 12 | 35 | 8 | 0 | 0 | 40% | Neg. | Present |
| 1 | 17 | 0 | 10 | Present | 50% | Neg. | Present |
| 1 | 10 | 0 | 13 | Present. | 20% | Neg. | |
| 2 | 10 | 0 | 10 | Present. | 8% | Neg. | |
| 3 | 8 | 0 | 12 | Present | 10% | Neg. | |
| 4 | 10 | 0 | 18 | Present | 0 | Neg | Present |
| 4 | 16 | 0 | 14 | Present. | | Neg | |
| 5 | 6 | 0 | 08 | Present. | 6% | Neg | Present. |
| 6 | 13 | 0 | 18 | Present | | Neg. | |
| 8 | 14 | 0 | 14 | Present | 0 | Sug | Present. |
| 8 | 9 | 0 | 10 | Present | 0 | | |
| 9 | 12 | 0 | 12 | Present | 7% | Neg. | Present |
| 9 | 11 | 0 | 5 | Present | | | |
| 10 | 9 | 0 | 8 | Present. | 23% | Neg. | Absent |
| 11 | 9 | 0 | 9 | Present | 0 | Neg. | |

These twelve cases fall naturally into two groups, the first comprising Cases 7 and 12, and the second, Cases 1 to 6 and 8 to 11, inclusive. Case 7 may be dismissed briefly. It is probably not a case of lead poisoning, the only symptom being the blue line on the gums, which is occasionally seen on workers in lead apparently as a result of a deposit of dust containing lead on the mucous membranes. His gastric analysis was practically normal. Case 2 was evidently one of acute lead poisoning. The man had only worked in lead for three weeks; the symptoms were moderate, but the basophilic degeneration of the reds may be accepted as proof that intoxication had occurred. The gastric analysis showed a mild degree of subacidity, and a rather pronounced reduction in the activity of the pepsin. The remaining 10 cases are all examples of achylia gastrica, or of subacidity with reduction of the pepsin. Altogether, 14 test-meals were obtained, which gave the following results:

SUMMARY OF TEST MEAL RESULTS.

The total acidity varied from 6 to 17; the average was 11.

Free hydrochloric acid was absent in every analysis

The deficit of hydrochloric acid varied from 5 to 18; the average was 11.5.

Lactic acid was present in every case. No quantitative estimations were made.

The peptic digestion was absent in three cases. It was 50 per cent. of normal in the first test meal of the first case and 20 per cent. of normal in the second test meal of this case. In Case 10 it was 23 per cent. of normal and in the remaining cases it varied between 6 per cent. and 10 per cent. of normal.

The Oppler-Boas bacillus was not found. In Case 8 it was reported as suggestive but the mere finding of a few long, thick bacilli can not be regarded as indicating its existence, at least not in the typical manner that occurs in carcinoma.

The red blood cells were stained for basophilic degeneration in seven cases. In six cases it was present (Cases 1, 4, 5, 8, 9 and 12), and in one case it was not found (Case 10).

In the cases of achylia and subacidity abdominal pain was noted in every case excepting the fifth

The blue line on the gums was present in every case excepting the eleventh.

Constipation was present in eight cases; anemia in four.

One patient had vomiting, and one complained of nausea.

Unfortunately, the absence of symptoms was not noted, and it is impossible to be sure that these statistics are accurate. Lead encephalopathy was present in one case; weakness of the arms, sometimes amounting to wrist-drop, was present in six cases

The duration of these cases was fairly long. Four of them had had previous attacks at various intervals up to nine years. In two cases the duration was not noted excepting the statement "for some time;" in all the others the duration was a year or more.

I have made a careful study of the literature in order to discover confirmation of these investigations, and have been unable to do so. I have gone in vain through the *Archiv für Verdauungskrankheiten*, including the abstracts from the literature, and through most of the recent text-books on the subject. Von Jaksch fails to mention it. It seems to me curious, in view of the pronounced digestive symptoms produced by lead, that this is the case.

Of course, a small series of cases is not decisive, but it seems fair to expect that in the majority of cases of chronic lead poisoning, or intoxication, disturbance not only of the gastric secretion, but (when they can be tested) of other forms of secretion, will be found. It is one of the misfortunes of the present day in clinical medicine that we have no means of obtaining the pancreatic secretion; but the salivary secretion may be obtained, and I hope to investigate it in a subsequent series of cases.

The mechanism by which this alteration of secretion is brought about is not clear. Whether it is merely a functional disturbance of the glands, or whether there is actually some anatomic alteration, is not known. I have been entirely unable to obtain portions of the stomach from a fatal case of lead poisoning in order to determine this point, but the opportunity will certainly arise in the course of time.

The only conclusions that are at present justifiable appear to be:

1. In a series of 12 cases of lead poisoning, or suspected lead poisoning, there was deficiency in the secretion of HCl in 10 of the chronic cases, and no deficiency in 2, one of which was doubtful and the other acute.
2. This deficiency in the secretion of free HCl in the majority of cases is associated with an extreme reduction in the percentage of peptic digestion, and with the presence of lactic acid.
3. It is not justifiable at present to regard it as an indication for treatment, at least not until the effects of the ordinary treatment for achylia gastrica in cases of lead poisoning have been tested.

# BRAIN HEMORRHAGE.*

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While brain hemorrhage is not of common occurrence, it happens with sufficient frequency to make its discussion of more than passing interest to the general practitioner. In this paper I shall take into consideration only those cases which are the result of degeneration of the arterial tunics.

Degenerative changes in the coats of the blood vessels were noticed and commented on in the early days of medicine by Lobstein, who gave it the name by which it has since been known—arteriosclerosis. Morgagni and Senac also speak of it. To Rokitansky and Virchow and, more recently, to Thoma we are indebted for a thorough investigation of the nature of the process, which I shall not take the time to discuss. I shall assume that the pathologic changes in arteriosclerosis and atheroma are practically the same—differing only in degree. In the small arteries of the brain substance we find minute aneurismal pouches caused by the gradual giving way of the diseased coats. As these blood vessels possess no true outer coat, their dilatation under the combined influence of disease and increased blood pressure becomes an easy one. Of capillary hemorrhages following the plugging of a vein I shall not speak, and while hemorrhage from a vein may occur, hemorrhage is practically always from an artery. It will not be amiss, I think, but profitable to notice at the outset some of the causes that lead to changes in the coats of the blood vessels. These alterations may result from a multiplicity of conditions, some of which are fairly well understood, while others are decidedly obscure. When we think of arterial degeneration, we are too prone, I fear, to picture to ourselves an old man who has lived his allotted time on earth and in whom decay and deterioration are plainly visible in every body cell. This is a fatal error. Arterial degeneration may and often does take place, from causes we can not well fathom, in those who are comparatively young; and that it does occur in these cases is patent to all who have had a fairly wide clinical experience.

That the consumption of large quantities of alcoholic beverages is a potent factor in bringing about this degeneration has been recognized for years. It is true that not all who use alcohol in its various forms have disease of the arterial coats, but it is found too frequently in this class of cases to be more than a mere coincidence. Not only does this poison affect the blood vessels, particularly of the brain, but also, in consequence of the effect of the alcohol on the glands and mucous membrane of the stomach and liver, poisons of varying degrees of intensity and non-oxidizable in character are found circulating in the body fluids, and we have this secondary cause added to the primary, with greater or less disease in the coats of the blood vessels.

I am satisfied that among business men, weighted with the responsibilities of large enterprises, who think long and persistently and yet drink constantly, these phenomena are most marked and come on earliest. At the last session of the American Medical Association, Cabot[1] of Boston read a paper in which he brought forward statistics to prove that alcohol is not the potent factor in the production of arterial degeneration that it is supposed to be; and yet the experience of the profession as a whole lends color to the belief that alcohol is, both directly and indirectly, a cause of this condition. Indeed, those who do not use alcohol in any of its forms but who lead a strenuous life, with but little freedom from worry and anxiety and with practically no exercise, become prematurely old and have premature vascular decay. In these cases, in some mysterious way, chemic or otherwise, toxins are developed which slowly but nevertheless surely bring about arterial degeneration. Or it may be, as has been suggested by Romberg, that the irregular blood pressure caused by an unstable and overwrought nervous system is the cause.

Next to alcohol as a factor in the production of these pathologic changes stands syphilis, and like alcohol its evil effects are seen in a most pronounced way in the blood paths of the brain. The syphilitic poison, whatever it may be, interferes with the nutrition of the walls of the blood vessels, destroying in a measure their elasticity, and thereby allowing them to become weakened and dilated. In some cases we may find both alcohol and syphilis operating as causes, as in a case I have under observation now.

In brain hemorrhage, chronic interstitial nephritis with its unknown antecedents should always be thought of and looked for, and is next in importance to the causes I have already assigned. In this disease, as prominent symptoms there are marked changes in the walls of the blood vessels, increased peripheral tension, followed by cardiac hypertrophy with its augmented potential energy. Whether the degeneration of the blood vessels is primary and the kidney lesion secondary or vice versa, I can not say. It is certain that toxic substances circulating through the blood and not eliminated by the kidneys, must sooner or later produce this form of degeneration. Indeed, these poisons bring about destructive changes in the kidneys in the same manner as in the coats of the arteries.

It is within the range of possibility that an increased activity on the part of the suprarenal glands may be a cause of greater or less intensity in the production of arteriosclerosis. Just to what extent this is operative as a cause can not be definitely stated, as it will require a great deal of experimental, as well as clinical, research to determine it.

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* Read at a meeting of the Northwestern Ohio Medical Association at Tiffin, 1904.

[1] The Journal, Sept. 17, 1904, p. 774.

A multiplicity of other factors might be mentioned as leading to vascular decay, but as these are sufficient for the purpose of this paper I will not consume time in their discussion. Aside from the disease of the blood vessels, another factor is essential to the production of cerebral hemorrhage, and that is increased intracranial blood pressure. Branches of the middle meningeal artery are the ones most frequently ruptured; and particularly is this true of the lenticulostriate artery. Mendel has pointed out that the normal blood pressure is higher in this artery than it is in the cortical or other small arteries of the brain. If this be true, it will account in a rational way for the more frequent rupture of this artery.

There are so many causes that lead to increased blood pressure that it would be impossible to mention them all. Indeed, the patient is seldom seen until after the artery has been ruptured. If the physician is consulted before actual mischief has been done, he should point out the danger arising from sudden, severe, muscular effort, such as lifting, running to catch street cars, straining at stool, in short, anything that is liable to excite the heart's action. I wish to emphasize particularly the injurious influence arising from the pleasures of the table. Attacks of indigestion, which in this class of cases are so liable to follow a full meal, are a very great source of danger. The heavy meal should be at midday and the last meal should be taken at least three hours before going to bed. All articles of diet which produce flatulence should be avoided because of the danger of bringing on disturbed heart action. This distention of the stomach and bowels with resulting increased cardiac force, will explain many of those cases of sudden death which are encountered at times. The individual will go to bed at a seasonable hour after a hearty meal, apparently in the best of health and with perfect tranquillity and will be found dead in the morning. Tea and coffee should be entirely omitted from the dietary for the reason that they, too, disturb cardiac repose. For the same reason, anything containing alcohol should be tabooed. There can be no doubt that as man grows older less food should be eaten, particularly meats. This applies with greater force to those who have the responsibilities of business and professional work. We are a nation of high livers, and sooner or later we must pay the penalty.

As I have already said, we are seldom called until after the hemorrhage has taken place. These bleedings are not always profuse, but at times are slight in character and well-directed management will be of incalculable benefit to the patient. Nowhere in the whole domain of medicine is it more necessary to have well-defined ideas of what to do, and then do it. In these cases we must act quickly. Delays are dangerous. The individual should be subjected to as little handling as possible. This is a matter of vital importance. If at home, he should be made comfortable just where the attack comes on him. The head should be elevated and the clothing loosened. If the extremities are cold they should be surrounded with bottles of hot water. The dosing of the patient with ergot, iron, tannic acid and bromid is worse than useless. We have two factors to contend with—a broken blood vessel and a rapidly working, forceful heart pumping blood into it.

Manifestly, then, what is needed is quickly acting, powerful cardiac depressants, something that will limit the ability of the heart to pour blood into the bleeding vessel. I need hardly say that we can not stop the flow of blood into the ruptured artery, but we can lessen it. Moreover, there is increased peripheral tension, which must be relieved. The remedies to be used, named in the order of importance, are aconite, veratrum viride and gelsemium, and venesection. If the fluid extract of aconite is used it should be given in good-sized doses until its physiologic effects are apparent, say from five to ten minims every 30 minutes, when the dose is to be lessened or the interval lengthened. In the more pronounced forms of the trouble, when the patient can not swallow well, aconitin, in 1/50 or 1/100 of a grain, should be given hypodermically and repeated when necessary. When veratrum viride is used the initial dose of the fluid extract should not exceed five minims. This drug is a powerful cardiac depressant, but its action should be carefully watched in order to avoid producing nausea and vomiting. Gelsemium, by its direct action on the heart, is a most serviceable drug in these cases, and because of its lessened liability to produce nausea it is possibly to be preferred to veratrum. When the face is markedly cyanosed and when the individual is decidedly full-blooded, phlebotomy may be practiced with most gratifying results; but when the individual is of spare habit the loss of sufficient blood to be beneficial might put him at a disadvantage in his future struggle for recovery. Hypodermoclysis, by reason of its causing increased cardiac action, is not to be thought of. There is a growing belief that gelatin, by reason of its increasing the coagulability of the blood, is indicated in cases of concealed hemorrhage. It may be given by the mouth or injected under the skin. The amount hypodermically is usually about 250 c.c. of a 1 per cent. solution in a normal saline mixture.

To the larger portion of the profession, however, this procedure is lacking in practicability because gelatin might not be at hand from which to prepare the solution. Another objection is its slowness of action, and this I consider a serious one, for in cases of this character a prompt, energetic response is required. It goes without saying that stimulation with whiskey, brandy or strychnia is contraindicated.

Cathartics of any kind should not be used for the first few days because of the disturbance the act of defecation produces. When a cathartic is given, I think the mild chlorid of mercury the best.

The ice-cap to the head is recommended by competent physicians, and yet I regard it as of doubtful utility. I am at a loss to know how it can in any way influence the circulation in the deep structures of the brain, particularly such small arteries as those that are ruptured.

The patient should be kept absolutely quiet in bed for ten days or two weeks, and during this time should not be allowed to see any one except the physician and those in immediate attendance.

**Clear-Cut Therapeutics.**—One of the fatal mistakes made by the unthinking physician is to so medicate as to mask symptoms—a veritable burying of clean-cut therapeutic possibilities in medicines not indicated. This is a direct outgrowth of uncertain remedies, always the precursor of uncertain application. Given true remedies, there is courage for the physician to study certainty of application, out of both of which comes scientific practice.—*Alkaloidal Clinic.*

# THE MANUFACTURE AND USE OF TIN SPLINTS.

## WITH SOME SPECIAL APPLIANCES.*

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I have chosen this subject not because tin splints are not used but because the general practitioner does not realize how easily he can make them himself to fit each individual case, and because I have some special devices to offer which I have found of considerable value.

Sheet tin is a material peculiarly adapted to form some of the common splints we are called on to use. It is thin and light, when shaped into a splint it has considerable firmness, and it is a material which is easily manipulated. The equipment is simple—a small vise, tin shears, a hammer, a 5-cent punch and a few small rivets. I have made all the splints which are illustrated in this article out of about 30 cents' worth of tin. I have a metalworker's hammer; it is a convenience, but most of my work has been done with a common, cheap, carpenter's hammer. A small block of soft metal or a piece of hard wood is a convenience.

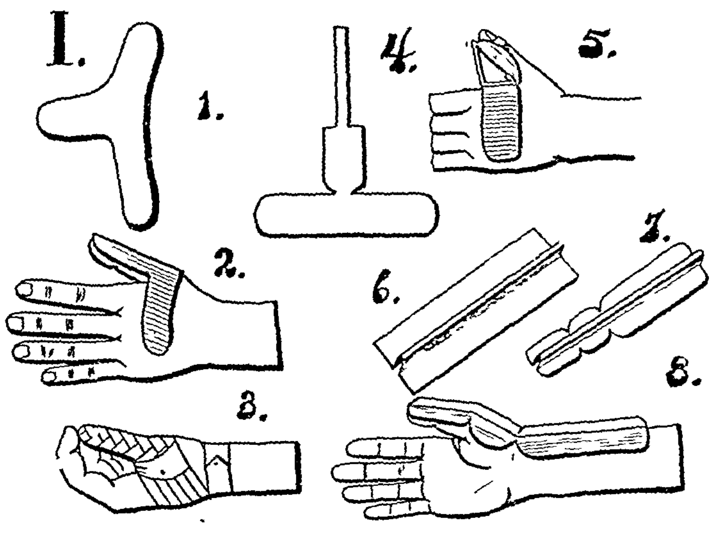

Chart 1.—Thumb splints. 1, 2 and 3, Dorsal splint; 1, Pattern; 2, outline for pattern; 3, splint applied. 4 and 5, Goldthwait splint; 4, Pattern; 5, splint; 6, 7 and 8, long dorsal splint; 6, Shows the ridge for strength; 7, outline cut; 8, bent and shaped.

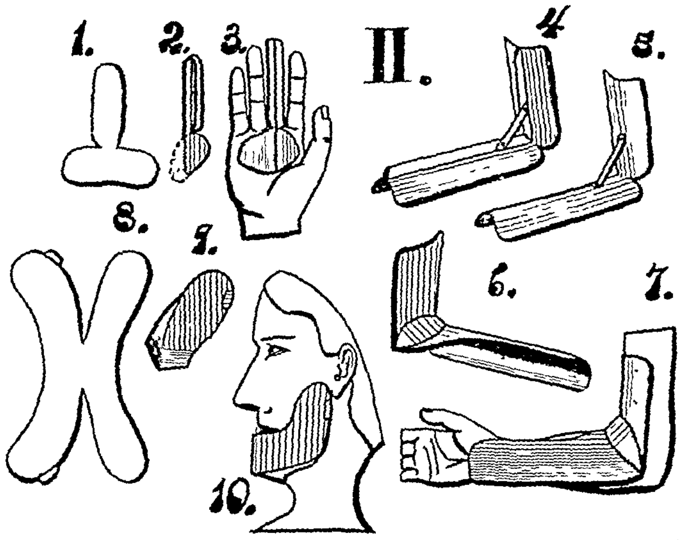

Chart 2.—1, 2 and 3, Finger splint: 1, Pattern; 2, splint; 3, splint applied. 4, 5, 6 and 7, Internal angular elbow splint; 4, With the ridge; 5, without the ridge; 6 and 7, with forearm piece swung to the inside for "thumb-up" position. 8, 9 and 10, Jaw splint: 8, Pattern; 9, splint bent—shows half of splint; 10, splint applied.

In the manufacture of splints it is no small consideration that we can make a splint to fit the individual case. A pattern is easily made by laying a sheet of paper on the place to be fitted and then marking a rough outline of the splint to be made, e. g., on the dorsum of the thumb for the dorsal thumb splint (Chart 1, Fig. 2). The paper is now removed and the rough outline is again gone over with the pencil to smooth out its irregularities. This is cut out and serves as a pattern (Fig. 1). This pattern is laid on the tin sheet and outlined with a pencil or scratched with a metal point, such as a nail or scissors. The splint is then cut out and shaped to fit the part. In order to give it a finished appearance and to cover any ragged edge it may have, a narrow strip of surgeon's plaster is rounded over the edge about the splint.

This dorsal splint makes a firm splint for the thumb when properly fastened, and it lends itself gracefully to bandaging (Fig. 3). In Figures 4 and 5 we have the splint devised by Goldthwait of Boston. The pattern, Figure 4, may be made by marking the lower wings the width and length for the bearing on the hand, the middle portion the length and width desired for the thumb, and the upper portion about one-quarter of an inch wide and long enough to bend downward and then backward to or beyond the angle at the base of the thumb and thus to act as a brace for the thumb piece, Figure 5. A strip of surgeon's plaster placed downward over this strip and then turned under the hand-piece serves to hold it firmly in place. The middle portion is trimmed and shaped to fit the thumb and the splint is finished, as all the splints are, by a narrow strip of surgeon's plaster about the edges.

These two patterns form serviceable splints for the thumb and they are simple and easy to make. There are several other patterns which suggest themselves, but these will suffice and we will pass on to the long dorsal thumb splint (Figs. 6, 7 and 8). This splint gets its strength from the ridge, which is made by folding the strip of tin along its middle line, first by hand and then by pounding it with the hammer along the bend, using repeated blows of medium force until it is quite flat and straight. This fold is placed about a quarter of an inch deep between the jaws of the vise and the free edges are bent outward in successive portions from one end of the splint to the other. To make it flat and smooth along the center it is hammered while still in place but with the vise just loose enough to allow it to be drawn slowly through from one end to the other. It is evident that the strip of tin from which the splint is to be made should be cut half an inch wider than the splint is intended to be in order to allow for the double fold in the ridge, and it should be as long as the desired splint.

The splint is to be bent to conform to a natural position of the thumb and of the wrist. At the points corresponding to the base of the thumb and to the bend at the wrist, the tin should be cut straight in to within a quarter of an inch of the ridge, to allow the shaping of the splint after it is bent. The three segments of the splint should be trimmed to fit the parts they are to lie against. The ridge is now grasped in the vise and the splint bent backward at the wrist angle. The wrinkle made in the ridge is pounded smooth. This rivets it to itself and makes it firmly support the bend in the splint. The angle for the thumb is bent in the opposite direction. This time the ridge is stretched but it is very firm. The tin is now rounded to fit the parts and the ridge is beveled at the ends of the splint by cutting, or is smoothed over by being hammered flat.

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* Read at the meeting of the Western Surgical and Gynecological Association in Milwaukee, 1904.

This long dorsal thumb splint is of service in those cases in which, in addition to fixation of the thumb, we wish to fix the wrist also, as in some cases of dislocation of the thumb, some sprains of the thumb, tenosynovitis of the thumb tendons, some fractures of the metacarpal bone of the thumb and in suture of the thumb tendons.

Finger splints need little description (Chart 2, Figs. 1, 2 and 3). The patterns are simple; they are easily made; they have a narrow ridge to strengthen them, and this may be left standing or may be hammered over flat.

Fracture of the radius, of the ulna, or of both bones of the forearm above the middle, and some other conditions are best treated with fixation of the elbow at a right angle, in addition to other appliances. While plaster-of-paris fixation is suitable in some cases, many cases are more conveniently treated with the internal angular tin splint (Chart 2, Figs. 4, 5, 6 and 7). This is light in weight; it is easily removed and reapplied; it offers a certain amount of freedom of inspection even when not removed; and when once made it is always ready for use. The chart shows tin splints which can be easily made. Figure 4 shows one with the ridge bent in it. A small folded piece of tin riveted across the angle adds materially to its strength. Figure 5 shows one nearly as strong, bent from a single piece of tin without the ridge. These are both cut in at the elbow to allow bending at right angles.

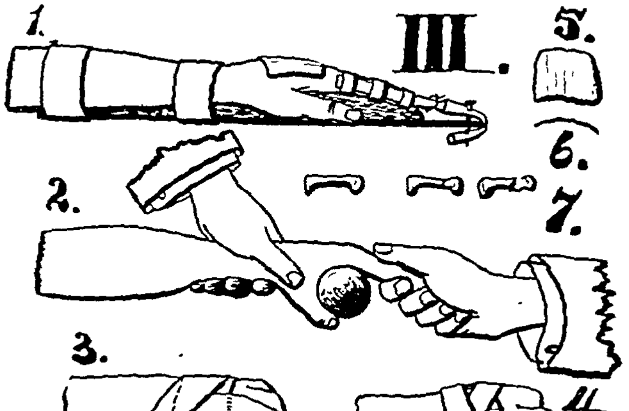

Chart 3.—Dorsal tin splint for metacarpal fractures. 7, Tendency of bone to cave downward.

A splint which is of greatest convenience is the one shown in Figures 6 and 7. This is cut so that the piece for the forearm swings over to the inside and makes it easy to place the arm in position with the thumb up, a position which is the most satisfactory one for most cases, as it is a position in which the ulna and radius are far apart, a thing of prime consideration in the treatment of fractures of these bones and it is the most natural and comfortable position for the arm to be in. The splint is constructed of three pieces, one for the upper arm, one for the lower arm and a small elliptical piece to strengthen it at the elbow. The upper piece should be cut out from its pattern first. It is bent to fit the curve of the arm and is then placed in position, with its lower edge against the paper which is being used to mark out the pattern for the forearm piece. This will allow an accurate outline at the elbow. The remainder of the pattern is outlined as in the figure. The splint may be fastened together in various ways. A simple method would be to fasten it at the elbow line with narrow strips of tin riveted into place, and to substitute for the elliptical brace one or two small folded strips of tin, as in the other splints described.

Fractures of the lower jaw, as a rule, are best treated in some other way than by the use of a splint, but if an external splint is used, a tin splint is light, strong and easily made (Chart 2, Figs. 8, 9 and 10). A pattern is easily cut out, as follows: Apply the upper part of a sheet of paper over the mouth and jaw, back as far as the ears, and mark the outline corresponding to the lower jaw. Now hold the paper at the point of the chin and tip the lower portion up under the jaw, and fold the sides up to the ears and mark the outline of the jaw on each side, and the curve of the throat between. This gives a pattern such as shown in Figure 8. The wings are bent with the fingers and the lower portion bent up at the proper angle for the chin. If a small piece of tin is left on the upper wings, as shown in the pattern, these can be bent over and will act as hooks to catch the lower wings when bent up and will lock them into place instead of a rivet which might be used.

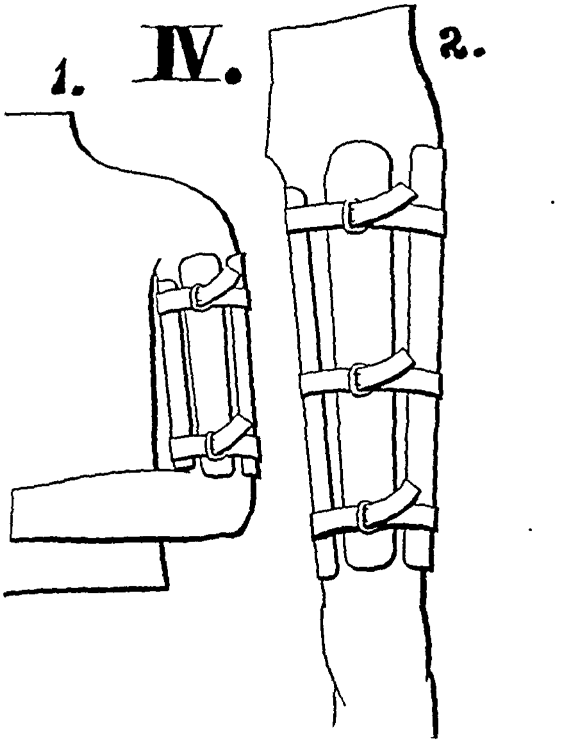

Chart 4.—Coaptation splints for thigh and forearm.

Fractures of the metacarpal bones are often unsatisfactory to treat. The usual tendency is for the bones to cave down (Chart 3, Fig. 7). Most of the devices for the treatment of these fractures aim at traction to overcome shortening, and then at some form of rounded pressure in the palm to force up the arch of the bone.

To these methods I have added a dorsal tin splint, curved to fit the back of the hand but straight in the line of the metacarpals (Figs. 1, 3, 4, 5 and 6). This offers a firm surface against which to force the fractured metacarpal by the palmar padding.

Fracture of the shaft of the femur and of the shaft of the humerus are best treated, as a rule, by coaptation splints for their inner set of dressings. Plaster of paris is not satisfactory; it is rigid and can not be tightened to keep pace with the atrophy of the soft parts. By the use of buckles and straps of webbing, coaptation splints can be tightened, daily if necessary, without disturbing the fracture (Chart 4). Tin lends itself very readily to the formation of coaptation splints. It is easily rounded to fit the curve of the thigh or arm, and when so rounded it is in the form of an arch and is exceedingly strong. It is light and it is so thin that it offers the least possible interference with any outside apparatus which may be used. Large hospitals could have a number of these splints made, of various lengths, padded, covered with muslin, and stored away ready for use.

With fractures of the humerus high in the shaft, the control of the upper fragment is often unsatisfactory. A properly-fitting shoulder cap might help to do this, but I have never been able to find a properly-fitting shoulder cap on the market. The most that they do is in effect to lengthen the outside coaptation splints. They do not get a grasp on the shoulder and fix the shoulder girdle. One can be made of tin, however, which will do this (Chart 5, Figs. 1 and 2). By laying a sheet of paper over the shoulder, we can mark out a pattern well down on the chest in front and in the back, and then, holding it at the point of the shoulder, we can tip the lower end against the arm and mark out a sufficient arm-piece well down toward the elbow. This serves as a pattern. The splint may be made from one piece of tin or from two. The tin is bent to fit the arm and shoulder, hammered a little at the shoulder to round it, and fastened with two or three small rivets on a side along the line of junction while held at the angle which best fits the shoulder. This splint, when properly fastened by adhesive plaster strips and bandage, gives firm support to the shoulder girdle and fixes the arm.

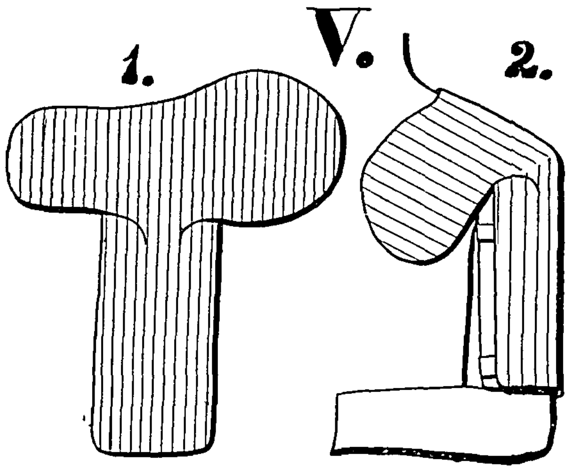

Chart 5.—Shoulder cap: 1, Pattern; 2, splint.

This brings me to the second portion of my paper, in which I hope to present briefly two original devices. The first one was worked out while trying to gain full flexion and extension at the elbow after a "T" fracture into the joint. It was successful beyond my expectations, and consists of two sets of appliances, one to gain flexion and the other to gain extension. The apparatus to gain extension (Chart 6, Fig. 1) consists of a tin brace extending from the upper to the lower arm, two tin shields to take the direct pressure of the ends of the brace off from the soft parts, a hammock of strong cloth doubled beneath the elbow and sewed in such a manner that a strap can be run through the end on one side, brought up over the brace and passed through the end on the other side and back above the brace again until it passes through the buckle. When the strap is drawn tight, the elbow is drawn directly up toward the brace, which is rounded in the form of an arch and is very strong. This allows the elbow to be strapped up toward the brace with all the force the patient can stand without too much pain, and it allows the restless patient to walk about, while the strap still does its work. When the arm yields a little, the strap can be tightened again. When the arm is nearly straight, it is best to prop the brace up a little distance above the arm by putting a pad under each end. This gives more room between the brace and the bend of the elbow, and allows the arm to come up more easily.

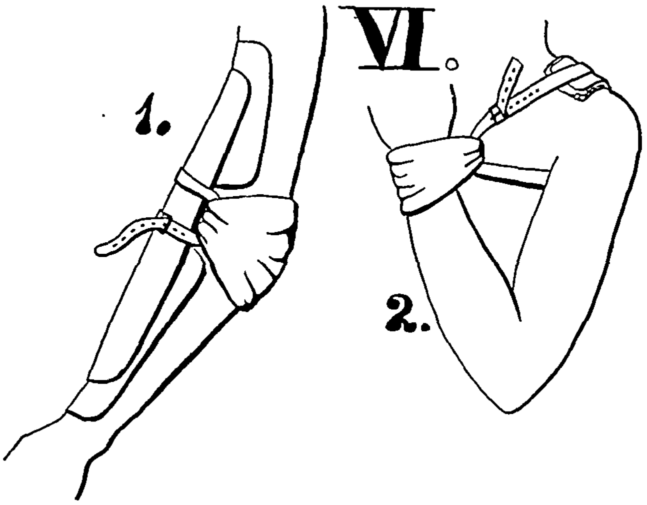

Chart 6.—Apparatus to gain extension (1) and flexion (2) at the elbow joint.

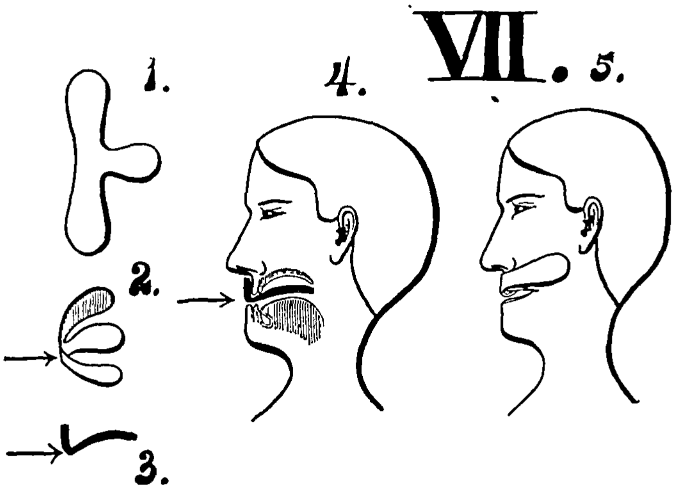

Chart 7.—Device for protection of the line of suture in cleft palate operations: 1, Pattern; 2, splint; 3, section; 4 and 5, splint applied.

The device to gain flexion is even more simple (Fig. 2). A small tin shield, well padded, takes the direct pressure of a strap which passes over the shoulder and beneath the axilla and then about the wrist, or through a broad band of strong cloth at the wrist and then through the buckle. The shield may be placed behind the upper arm and the strap run around the arm instead of around the shoulder, if desired, when some degree of flexion is gained. The advantage of this device, as well as of that for gaining extension, lies in the fact that as strong a pull as the patient can well stand can be applied, and it can be exerted as long a time as desired.

I have found that it is of greater comfort to the patient to use forced flexion one day and forced extension the next rather than to attempt both on the same day. This method of applying force, of course, can be used on elbows in which motion is limited from other causes, as after dislocations.

The last device is represented in Chart 7, Nos. 1, 2, 3, 4 and 5. It is made for the purpose of protecting the line of suture after operations for the closure of a cleft palate. The pattern is easily made. The center strip, which is to protect the suture line, is readily cut out, not quite so wide as the arch of the teeth, and not quite so long as from the lip to the back of the soft palate. The upper portion of the paper is turned up against the lip and cheeks, and the wings used as a support, for the splint may be marked out. The middle piece is bent to a flat arch, much flatter than the vault of the palate, and it gets its bearing either along the palate near the line of the teeth, or on gauze packing placed in the incision usually made near this line.

In actual use it best can be kept clean by wrapping the entire splint in rubber tissue.

# THE DIAGNOSIS AND TREATMENT OF ABDOMINAL PAIN.*

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Satisfactorily to elucidate within the limits of an address the subject of the diagnosis and treatment of abdominal pain is a task like that of cleaning the stables of Augeas and would require a second Hercules for its performance. Pain is probably the most constant of all symptoms, no matter what the disease nor where the pathologic lesions are situated, and the abdomen is surgically the most extensive and the most important part of the human body. From the sudden stab of momentary indigestion to the chronic agony of cancerous ulceration, from the burning ache of gastric or intestinal perforations to the prostrating pain of ruptured extrauterine pregnancy, through the whole fell gamut of abdominal disease the surgeon's mind must run, as he seeks here and there a note of hope from the discord of pain, in the effort to snatch his suffering patient from the grave. If at times the opportune moment is lost, if the correct diagnosis is missed, what inexpressible sadness must fill the surgeon's heart, as he is compelled to stand idly by, watching the lone sufferer sink beneath the pestilential blast of peritoneal inflammation. How keen must be his self-reproaches when he realizes, as he mostly does, that timely operation would have saved the life which is now ebbing away before his eyes, and would have restored to the happy family circle a loved husband or wife, an only son or an idolized daughter. Vain, then, are his regrets; vain are his efforts to slow the fevered pulse, to check the constant vomiting, to quiet the anxiety of mind and the unequaled distress of body, attendant on fatal peritonitis. The violence of the symptoms at times, indeed, may be soothed in the happy slumbers of an opium trance; but it is a trance which lasts until the wan sufferer has reached that land from whose bourne no traveler returns.

To a surgeon who has seen in his own practice or in that of others such deaths as these, and who has had brought home to him, perhaps, by the death of one dearly loved the sense of loss which is doubly calamitous under such circumstances, no efforts of human ingenuity, no laborious procedures of human skill, no pains to acquire that experience without which diagnosis is but a haphazard guess and prognosis a leap in the dark, no means, I repeat, human or divine, appear too insignificant to be availed of in the study of the diagnosis and treatment of abdominal pain.

I trust, therefore, that you will bear with me if I seem to lay too much stress on the advisability, on the indispensability, on the absolute necessity of attentively studying every case in all its details, trivial as some of them may seem, before arriving at definite conclusions. Superficiality is a trait which the abdominal surgeon of all others must shun at the present day. There are many individuals who are satisfied if from a hasty examination they can come to one of two conclusions—either that the patient must be operated on or that he must not be operated on, leaving until after the abdomen is opened the determination as to what the operation shall be. Such operators say, "If we do not know what is inside where is the harm in cutting a hole to look through?" The most appalling disasters in surgical history are the results of this teaching. No surgeon should feel satisfied with his own ability until he is able to say, with a reasonable degree of certainty, whether, after the abdomen has been opened, anything further can be done to relieve the patient's condition.

Nor would I have it understood that an exploratory laparotomy is never justifiable. In many abdominal conditions, such as cancer of the stomach, we explore to ascertain the extent of the disease, with the hope of removing it, if possible, and with the expectation of at least being able to render the patient's remaining days less painful and distressing. In some patients, when first seen, peritonitis is so extensive, and the history so obscure or deficient, that we explore to seek the source of infection, with the hope of removing it, if possible, and with the certainty of being able to give a means of exit to the products of inflammation, whose systemic absorption is producing the toxemia or possibly the hopeless septicemia of the disease.

Delay in the diagnosis of abdominal pain should be studiously avoided. Every diagnosis made at the postmortem table or at an antemortem operation is sometimes, indeed, merely sad evidence that the art is long and time short—that the art of surgery is not yet a perfect science—but it is more often a demonstration of the culpable negligence of the surgeon or physician in his manner of eliciting the patient's history, of noting his symptoms, and of making the physical examination.

Abdominal pain is nature's signal of intra-abdominal mischief, and it is criminal to shroud it over with a foggy mist of opiates. Opium is probably the most valuable single drug in the pharmacopeia, but it is the remedy of all others which is most outrageously abused. A physician who makes a practice of administering a hypodermic injection of morphin to the patient who complains of abdominal pain, before he makes a conscientious and systematic physical examination of the abdomen, and before he arrives at a diagnosis which shall be at least tentatively correct, is, in my opinion, a physician not worthy of the name.

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* Read before the Hartford (Conn.) City Medical Society, 1905.

### CHARACTER OF THE PAIN.

Abdominal pain may be acute or chronic; it may be due to intra-abdominal disease or to thoracic disease; it may be due to colic or to inflammation, to disease or to trauma; and it may be classified in various other ways: It may be pricking, stabbing or lancinating, cutting, tearing, burning or aching. It may be spontaneous to all appearances or due to some well-known cause. To discuss in detail the many lesions, abdominal, thoracic, spinal or other, which may give rise to abdominal pain of whatever variety, would lead me too far afield; and they may be found, moreover, in many text-books of surgery and may be studied there to better advantage. But what we do not find in surgical text-books, and what I venture to think is of great importance to the general physician as well as to the abdominal surgeon, is a clinical study of pain in the abdomen; and to this point I now beg leave to call your attention.

### PATIENT'S HISTORY.

We may learn, first, from the history of the patient whether similar pain was ever experienced before; how long the intervals of freedom from pain have been; the duration of each attack; and the character of the pain. If the pain is recurrent, it is more likely to be due to the repeated action of the same cause than to be produced entirely *de novo;* that is to say, it is more probably due to gastric or to duodenal ulceration, to recurrent attacks of appendicitis, to biliary or renal calculi, or even to locomotor ataxia, than to such causes as ruptured extrauterine pregnancy, strangulated hernia, pleuritis or pneumonia, from recurrent attacks of which diseases a patient is rarely liable to suffer. If the pain recurs with considerable regularity after the ingestion of food we are naturally lead to examine the patient for gastritis, ulceration of the upper intestinal tract, or peritoneal adhesions following some previous illness. If the pain recurs periodically with menstruation we instinctively look to the generative organs for its cause. If it occurs with persistence, but irregularity after the ingestion of food, gallstones, pancreatic disease and appendicitis must be recalled. If it invariably follows, precedes or accompanies defecation, then hemorrhoids, fissure of the anus and cancer of the rectum are brought to mind. If the pain is acute and occurs for the first time, we must look to the history of its onset with even more attention. Pain following sudden exertions may be due to strangulation of a hernia, either external or internal, to ruptured extrauterine pregnancy, to the loosening of old adhesions, to the formation of a volvulus, to the rupture of an overdistended bladder, or to an ovarian cyst twisted on its pedicle, or to an abortion. If the pain follows injury, either a fall, a blow or a crush, the previous history is of considerable moment. If the accident followed a heavy meal, the stomach may be ruptured; if the patient was intoxicated, the bladder is often ruptured; while the location of the injury, with other well-known symptoms, may suggest injury of the intestinal tract, the liver, the spleen or of one of the kidneys. In a pregnant woman, an impending miscarriage or an actual rupture of the uterus is to be feared. The history of the case is not so helpful in cases of chronic pain as is the physical examination, unless there have been acute attacks.

### AGE AND SEX.

Age and sex are of great value in the diagnosis of abdominal pain. In the female sex, the great preponderance of lesions of the pelvic organs over those of the intestinal tract should be recollected; but sudden pain, sometimes causeless, in anemic young women, especially those of a sedentary occupation, is frequently almost pathognomonic of perforated gastric ulcer. In children, the overwhelming importance of gastroenteritis, enterocolitis, or simple enteralgia must be kept prominently in view; but these should not make us forget the possibility of appendicitis, intussusception, Pott's disease, and pneumonia as frequent causes of abdominal pain in children. In the aged, malignant diseases of the stomach, the cecum and the rectum are usual causes of abdominal pain; while in adults, besides the diseases already mentioned, we have gall-bladder or pancreatic diseases and perforation of gastrointestinal ulcers.

### OCCUPATION.

The occupation of the patient is not usually of much aid in the diagnosis of abdominal pain; but painter's colic would at once be suggested if the patient were a worker in lead in any of its forms, while young and anemic seamstresses are notoriously prone to gastric ulcer, and barbers and others who stand much are apt to develop piles. Brewers are considered especially liable to hepatic congestions and cirrhosis.

### LOCATION OF PAIN.

The location of the pain is of great importance. In the first place, it may be either superficial or deep. The superficial sensitiveness of abdominal pain, which has been studied by Sheeren[1] and others in its relation to appendicitis, is due, as demonstrated by these writers, to an overflow of sensation from that part of the spinal cord with which the sensory nerves of the diseased area are in connection. In the case of appendicitis, the sensory nerves primarily affected are those connected with the eleventh dorsal segment of the spinal cord, and accordingly the overflow of sensation may occur into any of the other nerves connected with this segment, usually into the eleventh and twelfth dorsal and the first lumbar nerves. The irritation of the filaments of these nerves thus produced causes the superficial sensitiveness of the abdomen already referred to. This sensitiveness is best detected by gentle pinching, stroking or pricking motions, starting in unaffected areas and gradually outlining the region of cutaneous hyperalgesia. It is not out of place in this connection, perhaps, to devote a few words to the method of production of abdominal rigidity, which will occur whenever the reflected irritation affects a motor rather than a sensory nerve; the rigidity, therefore, is local or diffused, according to the extent of the intra-abdominal irritation, and is strictly analogous to the muscular contraction by which an inflamed joint is held rigidly at rest, a phenomenon which was long since explained by Hilton.

The sixth and seventh dorsal nerves supply the epigastric region, popularly spoken of as the "pit of the stomach," and pain in that region is not infrequently due to the existence of Pott's disease of the spine, the carious process compressing that portion of the spinal cord from which these nerves are derived. The eighth dorsal nerve is attributed to the region between the epigastrium and the navel, while the tenth supplies the skin in the umbilical region, and branches of the eleventh and twelfth dorsal nerve pierce the rectus muscle over the appendix. A twig of one of these lower nerves is found at McBurney's point, and thus explains the very great frequency of pain and cutaneous hyperalgesia in this situation when the appendix is diseased. The iliohypogastric, or first lumbar nerve, is distributed to the skin over the pubes and external abdominal ring, but also sends a twig to the tunica vaginalis testis, thus explaining the tenderness of the right testicles that may be found in appendicitis. Certain of these nerves, as previously implied, may be affected in various diseases of the spinal cord, producing at one time the well-known sense of constriction and at another the gastric or intestinal crises of locomotor ataxia. The erythematous group of skin diseases, moreover, is sometimes attended by abdominal crises more or less severe.

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[1] Sheeren, Lancet, Sept. 19, 1903.

### REFERRED PAIN.

The pain may be referred in some diseases into widely distant parts of the body; mere reference will suffice to the pain in the right shoulder blade sometimes encountered in hepatic affections, and to the tender spot to the right of the lower dorsal vertebræ often occurring in cases of duodenal ulcer; the pain in the thighs attendant on uterine and rectal disease is not to be overlooked, and I am cognizant of a case in which pain from pressure of an appendiceal abscess closely simulated sciatica.

With regard to the region of the abdomen in which the deep pain is felt, it may be said, as a rule, that the surgeon's knowledge of anatomy, which is the solid foundation of true surgical knowledge, will be a safe guide to him; but he should not take it for granted that the pain to the left of the linea alba can not be significant of appendicitis, nor that epigastric pain is never the chief subjective symptom of rupture of the urinary bladder. It has been my experience that an inflamed appendix situated in the pelvis frequently is productive of left-sided abdominal pain; and, although this may often be satisfactorily attributed to reflected pain involving the nerves of the left rather than the right side of the abdominal wall, as already described, yet the pain is sometimes deeply seated and exists in the appendix itself. Pain commencing in the kidney is exceedingly apt to run down the ureter or into the corresponding testicle; pain due to disease of the bladder may be felt only at the end of the penis; pain due to constipation and retained flatus may circle the whole abdomen in the course of the colon and be brought to an abrupt stop by the ileocecal valve in the neighborhood of a healthy vermiform appendix. A sagging loop of intestine, or the omentum, by pressure on the internal abdominal ring, may closely resemble chronic appendicitis; and I have seen such symptoms relieved on more than one occasion by the adjustment of a light truss. A proptosed stomach may hang well below the umbilicus, and may thus produce pain in the suprapubic region, and a similar condition of the sigmoid may be productive of rectal pain thought to be malignant in origin. A floating kidney or a wandering spleen may reach nearly every part of the abdomen and may simulate or be simulated by an ovarian cyst with twisted pedicle.

### LOCALIZATION OF PAIN.

Another matter of importance in connection with abdominal pain is whether the pain is first diffuse and later becomes localized, or whether it is first circumscribed in character, but subsequently becomes general. In appendicitis, for instance, the pain, as is well known, is usually at first somewhat widely diffused in the umbilical or epigastric regions, and only when the peritoneal inflammation commences is it distinctly localized to the right iliac fossa, and subsequently it may spread again over the whole abdomen as the peritonitis increases. In ptomain poisoning, on the other hand, the pain, early in the attack, is fairly well localized to the epigastric region, but in time involves the whole abdomen, yet without signs of peritonitis, thus pursuing a directly opposite course to appendicitis, in which the pain is first general and later is localized. In intestinal perforation, moreover, the immediate pain is local and fixed, but spreads with the peritonitis all over the abdomen, whereas in appendicitis the diffuse pain precedes the local. So, too, with relation of abdominal pain to vomiting. If sharp pain precedes the act of vomiting it will almost invariably be found that peritoneal involvement is present; whereas, if vomiting is the first symptom the diagnosis of any peritoneal lesion, especially appendicitis, must be accepted with great reservation.

### DIFFERENTIAL DIAGNOSIS.

There are a few affections which it is so essential to diagnose correctly, and in which an error is productive of such grave results, that particular pains should be taken to avoid mistakes. Among these the abdominal pain due to thoracic disease, which has been already referred to, is of great importance. In the case of pneumonia or pleurisy, when there is pain referred to the upper abdomen, the presence of a cough, rapid breathing out of proportion to the pulse, associated with high temperature; breathing in which the nose takes an active part, together with the presence of cyanosis, should satisfy us as to the thoracic nature of the disease. Examination of the chest should show the presence of physical signs.

Perforated typhoid or gastrointestinal ulcer is capable of simulating chest disease from dyspnea, cyanosis and the condition of the abdominal walls produced. Peritoneal friction consequent on perforated gastric ulcer has been mistaken for pleuritic friction.

Uremia, as is well known, may be accompanied by almost incessant vomiting; and Musser[2] has called special attention to abdominal pain due to uremia. He has seen it precede the uremic convulsions of puerperal nephritis.

The presence of severe abdominal pain when associated with vomiting always calls for careful examination for the presence of a hernia, as the rupture may be so small as never to have attracted the notice of the patient. On the other hand, the pain caused by appendicitis has been thought to be due to strangulation of a hernia which when operated on was found to be uninflamed, though irreducible.

In *intestinal* colic after eating indigestible food the pain is usually accompanied by vomiting. In colic due to poisoning with lead or brass the pain may be very severe and the paroxysms may continue for many days, accompanied by rigidity and tenderness of the abdominal walls. Pal[3] has expressed the opinion that the pain of lead colic is due to irritation and constriction of the blood vessels in the intestinal walls, which indirectly irritate the sympathetic nerve filaments. He has shown that this vascular tension is increased, during the persistence of the pain, from one-half to twice the normal pressure.

It must not be lost sight of that in the passage of gallstones the pain may be referred to the right groin, should always be explored if there is reason to believe in the existence of hemorrhage; not only may the immediate danger to life from the loss of blood be great, but if the patient survives the hemorrhage the probability of fatal peritonitis is great. As Richardson[5] well says, the use of intravenous infusion of saline solution may render such an operation possible even if the patient when first seen is in collapse and almost pulseless. In such cases as these—either intestinal perforation or intestinal hemorrhage—death without operation is so certain and so immediate, while a fatal termination in a laparotomy negative in its findings—the *laparotomie blanche* of the French—is so nearly unheard of, that the proper course to pursue, it seems to me, is no longer a subject for discussion.

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[2] Musser: American Medicine, 1904, vol. i, p. 503

[3] Pal: Wien. med. Presse, 1903, No. 2, p. 57.

Of the various classes of operation demanded for the relief of abdominal pain I have not left myself time to speak. Those for removing the cause of the disease, such as appendicectomy, cholelithotomy, prostatectomy, suprapubic lithotomy, oöphorectomy, hysterectomy, etc.; those for repairing lesions in the continuity of the intestinal tract, such as typhoid perforations, or perforations of gastric or duodenal ulcers, etc.; those for short-circuiting the ingested food on account of intestinal stenoses—all these operations, with the indications and results of each, might well be discussed in connection with the subject of abdominal pain. But if I have succeeded in drawing your attention to the salient points in the diagnosis and to the main principles of treatment of abdominal pain, I will feel that my remarks have not been entirely devoid of interest.

# REPORT OF THE MEDICAL DEPARTMENT OF THE UNIVERSAL EXPOSITION, ST. LOUIS, 1904.

LEONIDAS H. LAIDLEY, M.D.
Medical Director.
ST. LOUIS.

### ROSTER OF MEMBERS OF MEDICAL STAFF.

Medical Director: Dr. Leonidas H. Laidley, Jan. 15, 1902, to Jan. 1, 1905.

Attending Surgeons: Dr. Josiah G. Moore, surgeon in charge, Emergency Hospital, July 1, 1902, to Dec. 12, 1904; Dr. M. E. Sheets, April 15, 1903, continued in service; Dr. Otto A. Wall, March 31, 1904, to Dec. 1, 1904; Dr. Clyn Smith, April 29, 1904, to Dec. 1, 1904; Dr. W. S. Lawrence, Jan. 4, 1904, to Feb. 3, 1904.

Visiting Physician: Dr. Luther P. Walbridge, Nov. 15, 1902, to Dec. 15, 1904.

Bacteriologist: Dr. Carl Fisch, July 20, 1904, to Dec. 1, 1904.

Sanitary Officer: Dr. James M. Gassaway, lieutenant-colonel, Marine Hospital Service, June 14, 1904, to Dec. 1, 1904.

Ambulance Surgeons: Dr. George E. Adams, Aug. 12, 1904, to Sept. 30, 1904; Dr. Ned O. Lewis, March 27, 1904, to Aug. 12, 1904; Dr. Henry M. DeMenil, April 30, 1904, to Nov. 15, 1904.

Sanitary Expert: Dr. George W. Dumphy.

Sanitary Inspector: M. T. Sweeney, Feb. 1, 1903, to Feb. 28, 1903.

### ORGANIZATION.

The Chief of the Medical Department received his appointment January 13, 1902, with instructions to report to the Committee on Sanitation. At a meeting held to formulate plans for the organization of this department, the following general arrangement was made and approved: The title of the Chief Medical Officer should be "Medical Director," the appointment having already been accepted. The Medical Director shall have authority to appoint, subject to the approval of the Committee on Sanitation, such assistants as he may deem necessary for efficiency in organization and for the prosecution of the work. The duties of the Medical Director were thus formulated: To organize a Medical Department having jurisdiction over all cases of personal injury in the line of duty; to assume the care of the resident population and visitors, and of such other cases as the Exposition Company might be responsible for, or which in their judgment should be cared for; to exercise a supervision over all sanitary and hygienic matters connected with the grounds and buildings and over all matters pertaining to the health and physical well-being of the employes engaged in the conduct of the Exposition. A temporary hospital was opened in the Athletic Club House, which had been fitted up for the care of patients, two wings, offices, and examination and operating rooms were constructed, thus making reasonable provision for the care of the sick and injured. The Medical Director, after the preliminary work in organization had been effected, was instructed to report to the president all matters pertaining to this department. At the end of the month, a full report was rendered both to the president and to the chairman of the Sanitary Committee. Blank vouchers, payrolls and other stationery were furnished for future use. All orders for supplies were sent to the president, and were forwarded by him to the committee on supplies to be furnished.

In the selection of my staff, I gave preference to those who had hospital experience for one or more years, and likewise selected those who did clerical work from those who had army experience, and found them well trained and willing help.

The large resident population, many of whom lived in tents, with a large force of workmen, called for resident surgeons, who spent their time in the hospital, and one visiting physician, who cared for the sick in the camps and temporary buildings.

No one was employed in any department who would not give all his time and attention to the care of the sick and injured. The hospital service was placed under the care of the senior surgeon, to whom all should answer in the absence of the Medical Director.

A full report was kept of each case brought to the hospital, both as to its medical character and the circumstances attending the injury which might have any bearing on liability as it affected the corporation. Early in the construction period, an inspector was sent to our aid from the Engineers' Department, and he reported daily any insanitary condition within the grounds.

### BUILDINGS.

The temporary hospital contained one ward, with six cots and eight wicker lounges, a drug room, an operating and examination room, diet kitchen and sterilizing room and office of the Medical Director. The active force on duty day and night began their work July 1, 1902, Dr. Josiah G. Moore being placed in charge of the hospital. Additional members of the staff were appointed as the necessity arose.

On January 7, 1904, the permanent Emergency Hospital was delivered to the Medical Director; it was situated at the east end of the grounds, making one of the group on the Model Street, accessible to the cars and surrounded by the park, one of the most desirable locations for the accommodation of all. In arrangement, it was well adapted for its purpose; it was built of wood, and was two stories high; the lower floor was covered with granitoid. On this floor there were two wards, each containing twelve beds and six wicker couches; one ward was set apart for men and one for women. Two other rooms were constructed, one for isolation and the other for sunstrokes. The latter room was especially fitted up for emergency in case of a hot season, but was found to be useless as there was not one case of insolation to care for. In the rear of the building were located the general operating room, the dressing room and the sterilizing room, all of which were fitted out with a complete hospital supply of the very latest and improved instruments used. I wish, in connection with this, to note that these were contributed without charge to the Exposition by the firm of Blees-Moore & Co., of this city; also all dressings and every need was furnished by them promptly and freely. At the entrance, were located the offices of the Medical Director, the staff, an *x*-ray room, the superintendent of nurses, chief of sanitary department, storeroom, drug room, and diet kitchen; on the second floor were the dormitories for the staff, nurses and attendants. The kitchen was used to prepare meals for the attendants; and under the direction of the nurses, soups and various stimulating delicacies were prepared for the patients. It was a rule to remove all patients from the hospital before 10 p. m., but in a few cases they were allowed to remain over night owing to the inability to secure ambulance service from outside the grounds. I wish to acknowledge, in this connection, the prompt response with which the city department answered all the calls on them, not only with transportation but with willingness to care for all who sought aid at the public institutions.

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[5] Richardson: Boston Med. and Surg. Jour., 1902, vol. cxlvi, p. 224.

### AMBULANCE SERVICE.

An ambulance was placed at the service of this department at the beginning of the construction period. It was under the charge of David Stewart, who, during the exposition, became chief of the corps, and served in this capacity with eminent satisfaction, having had a number of years' experience in the Hospital Department of the Army. One ambulance was sufficient to care for all the calls and not until the dedication day was there any need for additional service. On that day, the city placed two ambulances, three surgeons and five nurses at the disposal of the Medical Director; these were located at a sub-station in the Administration Building. One surgeon, with the two house surgeons at the temporary Emergency Hospital, and three nurses, with an additional ambulance, made the complement assigned to that point. In the Liberal Arts Building, where the exercises were held, a station was established under the charge of Dr. L. P. Walbridge, who was assisted by two nurses, a sufficient number of assistants to meet all demands on that occasion, where there were more in attendance than on a like exercise of any previous exposition. During the presence of the greatest crowds, on and after the opening day, the two ambulances, well equipped and provided with a surgeon, a driver on duty constantly and a police officer, made up the complement that was able to meet all the demands of every occasion. Great apprehension was felt lest we should not be able to care for the various occasions with large attendance but we were favorably disappointed in finding that, owing to the splendid care on the part of the guards and police officers on the spacious grounds, and owing to the sense of responsibility of the citizens of St. Louis endeavoring to make the Exposition not only the greatest, but the most orderly and desirable place for its people and their guests to visit, there was a smaller number to treat during the greatest attendance. This was noticeably so on Dedication Day, Opening Day, Saint Louis Day, President's Day, Missouri Day, Fourth of July and D. R. Francis Day.

The following rules were established for the government of the corps:

1. Two surgeons shall be on duty at the hospital, aided by one nurse in the operating room and one in the ward, their hours of service being from 8 a. m. until 3 p. m.; and a like number from 3 p. m. until 11 p. m.

2. One ambulance, with its attendant surgeon fully equipped for any emergency, and usually a metropolitan police officer, shall be on duty constantly, subject to the call of the chief, who shall receive all messages and convey the same to his subordinates.

3. The commandant of the "Guards" instructed all his subordinates to aid in every possible way in caring for the sick and injured before the arrival of the surgeon and his aids, and in assisting in placing them properly for transportation in the speediest time.

4. Every consideration must be shown by all employes of the Exposition to the sick and injured, and under all circumstances the patient must be taken to the hospital in the shortest time possible.

5. No one shall be allowed to take the ambulance or wagons used by the visiting physicians off the grounds, except by permission of the Medical Director, and under no circumstances is any one allowed to ride in any of the wagons except those in their line of duty.

By the order of the President, approved by the Superintendent of the Division of Works, the Medical Department was given the right of way and by common consent this was agreed to by every one on the grounds.

6. In every case a written report must be made to the medical director or to his representative, a copy of which is to be placed on file; likewise a more extended report shall be made by the representative of the accident insurance company with whom the corporation is insured. By so doing the legal right of the corporation may be protected.

7. The equipment of stretchers and appliances must be distributed over the grounds at such places as can be easily reached by guards and other employes near at hand; likewise all officers must be trained in their use.

Lastly, the strictest decorum and courtly attention must be given to all, avoiding noise, undue haste or any semblance of rudeness to those who come under your care. When any controversies arise they are to be referred to the chief of this department, or to his immediate representative.

LEONIDAS H. LAIDLEY, Medical Director.

### SANITATION.

The sanitary section was organized early in the work of this department. During the construction period Dr. L. P. Walbridge, in charge of the work of visiting the sick in the camps and also in inspecting the grounds, with the inspectors in the Engineers' Department, were able to report daily any unsanitary condition, which was ordered abated immediately. This duty devolved on the Chief of the Engineers' Department, Mr. Richard H. Phillips, and it is my pleasure to testify to his efficiency and promptness in discharging every duty. A number of camps were established on the grounds to accommodate the workmen and their friends, which required special regulations for their government. The following order was issued in order to control the health of those residing within the grounds:

1. The Louisiana Purchase Exposition Company will furnish prompt and competent medical or surgical service without charge.

2. No one in the camps will be permitted to employ a physician not employed by the exposition company without the approval of the Medical Director.

3. Under no circumstances will a case of any contagious or infectious disease be permitted to remain on the grounds.

4. All cases of illness should be reported to the Emergency Hospital, or, if the patient be unable to go to the hospital, report should be made to the sanitary inspector, who will see that the proper notice is given to the medical department.

L. H. LAIDLEY, Medical Director.

The above rules greatly aided in keeping the grounds under surveillance and aided the detection of any contagious disease. The disposition of garbage and waste from the camps elicited no little concern at first, but a police regulation compelled all to use the improvised water closets consisting of openings in the ground, well disinfected with sulphate of copper and chlorid of lime, and garbage, was destroyed daily in a crematory established for that purpose.

The spring water found on the grounds was examined by Dr. Carl Fisch, bacteriologist, and was found to contain many colon bacilli. An order was issued forbidding every one from using it under penalty of being driven from their camps. The city water was freely furnished by hauling until a connection with the city mains was established, furnishing comparatively pure water. During the Exposition period, a supply of water was furnished by the special water mains and pipes furnished for sprinkling and general use, except for drinking purposes. Water for drinking was provided by the Exposition Water Company in machines and booths furnished for the purpose. This water was transported from DeSoto, Mo.; it was taken from an artesian well, which after most careful examination was found to be free from micro-organisms. During the early part of the Exposition a long-felt want was met by the improvement of the water furnished by the city in the removal of all vegetable matter, leaving a clear and comparatively healthy water. The sewering system provided by the Superintendent of the Division of Works was all that could be desired.

The garbage was collected every night and in part through the day, carted to the southwest part of the grounds, where it was cremated in a manner demonstrating all the new and well approved methods of caring for the refuse of a city.

In the appointment of James M. Gassoway, M.D., Lieutenant-Colonel, U. S. Marine Hospital Service, as Sanitary Officer, June 14, 1904, began the final and efficient organization of the Sanitary Department of the World's Fair. Dr. Gassaway made daily inspection of all parts of the grounds, reported all insanitary conditions to the President and issued a warning to all who might be responsible for insanitary conditions. In dealing with concessionaires and those who were located on the "Pike," in order to avoid the trouble in other Expositions, a clause was inserted in every contract which gave the Medical Department absolute authority to cancel their contract unless they obeyed the rules of this department. I am happy to say that the extreme penalty was not resorted to and that the grounds, especially that part occupied by the live stock, were kept in a sanitary condition, as the following report from Chas. F. Mills, Superintendent of the Live Stock Department, will indicate:

> In compliance with your request I have the honor to report that the precautionary measures taken by the Exposition to insure the health and freedom from exposure to disease of the live stock exhibited at the World's Fair resulted in having the best of sanitary conditions provided.
>
> The exhibit of live stock held in connection with the Exposition was the largest in point of numbers on record, and the displays came from all of the breeding districts of the world and over all the leading lines of transportation.
>
> The various classes of live stock, including horses, cattle, sheep, swine, poultry, dogs, etc., in succession were on exhibition with short intervals during the heat, cold and storms incident to the season extending from Aug. 22 to Nov. 12, 1904.
>
> The careful daily inspection revealed no evidence of any disease among the stock while on exhibition at the World's Fair, and the chief veterinarian gave all applicants a clean bill of health with permits for outgoing shipments of all classes of live stock.

The lavatory service was especially troublesome for a time, but with the use of scrubbing and the free use of kresol as prepared by Parke, Davis & Co., bad odors and other difficulties were overcome. I wish to note the scientific manner in which this product was used by the sanitary expert during the summer months.

The question of contagious diseases being allowed to remain on the grounds was attended with great concern, especially on the arrival of strange people from every part of the earth. This was especially so of the Philippinos. On their arrival, a number of them had smallpox, one or more having died in transit. All persons who could not give a perfect bill of health were excluded from the grounds and those who remained on the grounds were vaccinated. This rule was adhered to without exception. During the Exposition beriberi appeared; there were forty-five cases with three deaths. Not being familiar with this form of illness, there being little to learn from the literature on the subject, it caused great alarm on the part of the Fair officials and for a time it was a serious question whether the infected tribes should not be immediately returned to prevent its spread. Dr. Carl Fisch, the official bacteriologist, with Surgeon Gassaway, made their report prompting a delay for action in the matter. Dr. Hunt, who was in charge of the Iggorotes, contended that it was due to a faulty diet and that it was not communicable to those who were not similarly situated. The food as to quality and preparation was changed and immediately there was an improvement noted in most of the cases. Dr. Fisch made postmortems on those that died demonstrating the character of the disease, as follows:

> The observations that I have had an opportunity to make on a number of the cases of beriberi occurring among the natives encamped on the Philippine reservation have yielded nothing that would add to the knowledge so far obtained about the character or the etiology of this disease. The impression that clinical study, as well as the postmortem examination gave was, however, decidedly that of the effects of a chronic or more acute intoxication. The nature of the toxic substance could not be discovered, although the result of two autopsies very much suggested the presence of a chronic infection, analogous in its pathologic effects to those of, for instance, malaria or trypanosomiasis. Careful search in the blood and tissues (especially the spleen) for anything resembling parasitic organisms was negative. Cultures made from tissues taken at autopsy yielded only the ordinary forms. Guinea-pigs, rats and rabbits injected subcutaneously and intraperitoneally with cultures of spleen, and portions of various nerves from two cases coming to autopsy remained well and showed no symptoms of disease, except one rabbit, which died from a purulent (staphylococcus) peritonitis.
>
> It can not be decided, therefore, whether the intoxication is due to a toxic substance, or whether it is the product of a toxin-forming parasite. The epidemiology of the disease certainly points to the latter conclusion; this, too, is suggested by the variability of the clinical course that was observed, most cases being mild and chronic, and recovering, while others showed the pernicious form and ended life in a few days. As there is no reason to assume that a toxic agent could have been ingested by these patients, under the conditions under which they were kept (some cases seem to have developed primarily at the reservation), that would not have affected in the same way a greater number, the analogy with other infectious diseases presents itself.
>
> Against a bacterial infection are to be adduced the findings at autopsy. The blood in both cases examined (Moro Peplon 7-28-1904 and Iggorote 8-27-1904, the latter a case of fulminant disease) was found to be sterile, even at autopsy. As before mentioned, cultures from the tissues yielded no results either. The histologic tissue changes were all of a character that would exclude the action of a bacterium in bringing about inflammatory reactions, although they to a degree resembled those, for instance, found after tetanus and hydrophobia. The pronounced enlargement of the spleen, with all the evidence of a chronic congestion, was the most characteristic finding in both cases, although, of course, it is doubtful whether it was a consequence of the disease itself. For the Iggorote case, running a course of only a few days, other causes are more probable. The heart, in both cases, exhibited the picture of a chronic interstitial hepatitis. The neuritic processes were very marked in all cases examined, leading often to a complete degeneration of the fibers. They were more advanced in the Moro case, where secondary proliferation of the perineurium and endoneurium had taken place, while, for the Iggorote, the picture of a fresh degenerative change of the fibers obtained.

### HOSPITAL RECORDS.

The character of surgical and medical cases treated during the construction period afforded a fine field for surgery, especially the cases due to violence and to falls from great heights, which comprised a list of injuries of the thoracic, abdominal and pelvic viscera. The extremities likewise suffered to a great degree in fractures and dislocations. In most cases in which death ensued there was found rupture of the stomach, liver or other of the vital organs, which with shock produced immediate or ultimate death. A number of workmen escaped fatal results after falling fifty feet or more, and in one case, during the local cyclone where eight persons were injured, one patient fell one hundred and twenty feet, suffering little injury. The number of gunshot wounds were not very numerous, only one death resulting from that cause; fourteen perforations were found in this case, and death was caused by hemorrhage. One of the cases was of such importance at the time that I hope I may be pardoned in giving a short report of the same:

*Patient.*—E. M., Aged 18, a visitor, of remarkably vigorous constitution and of unexceptional health, was shot in the abdomen during a brawl on the Pike at the Saint Louis World's Fair, June 18, 1904. He was admitted to the Emergency Hospital on the grounds, and within one hour an abdominal section was made.

*Examination.*—It was found that the ball had passed through the abdominal wall near McBurney's point, passing inward and slightly downward. On examining the viscera, it was found that the ball had penetrated the cecum, making two openings, one in front and another behind, and had passed down into the soft parts lining the pelvis.

*Treatment and Result.*—These openings were closed up by Lembert sutures, the abdomen was cleansed of large quantities of blood and escaping contents of the bowel, and the incision was closed with through-and-through sutures. The patient left the table within an hour under very favorable circumstances, the pulse being 72 and temperature normal. The next morning he complained of great pain in the hip joint, and was unable to move that limb. For ten days his condition was favorable, then he gave evidence of disturbance, especially about the joint. Chills and fever and increased pain suggested an examination with the *x*-ray, which would have been done earlier had we been provided with such an appliance. On July 11, an incision was made over the joint, disclosing the presence of pus outside of the joint, which was opened, showing that all of the head of the bone within the capsule was entirely destroyed and fractured; the acetabulum also was fractured and necrosed. Following up the course of the bullet, the missile was found lodged in the upper and outer margin of the cavity of the socket and was removed. The necrosed portions of the bone were chiseled out, the dead portion of the head of the femur was removed, the cavity was curetted, packed with gauze, and thoroughly drained. The patient afterward showed evidences of sepsis, which prompted me, on Juy 22, to reopen the wound, wash out the cavity and introduce further drains. These are continually used up to the present time.

*Subsequent History.*—About three weeks ago he manifested evidence of acute nephritis. On examination, it was found that he had a large quantity of albumin, with casts, evidently due to toxemia, as in scarlet fever. Since that time, by repeated cleansing of the cavity and thorough drainage, these evidences are disappearing, leaving him in a fair condition for recovery. The subsequent treatment will be to free the cavity and its surrounding structures of all suppuration, and by that means we hope to restore our patient to normal health, probably leaving him with a shortening of the limb, and perchance a degree of ankylosis.

At the time of writing I am happy to report the recovery of the patient with only one inch shortening of the limb.

### SUMMARY OF CASES TREATED AT THE EXPOSITION.

I hereby present a summary of the cases treated from the beginning of construction period to December 1, 1904:

Louisiana Purchase Exposition Medical Department. Summary of Work Done at Emergency Hospital During the Construction and Exposition Periods.

CASES TREATED.

| | Construction period. | Exposition period. May | June | Jly | Aug. | Sept. | Oct. | Nov. | Total. |
|---|---|---|---|---|---|---|---|---|---|
| New— | | | | | | | | | |
| Surgical ... | 3,412 | 499 | 515 | 467 | 489 | 472 | 388 | 284 | 6,326 |
| Medical ... | 2,736 | 436 | 650 | 815 | 740 | 884 | 728 | 392 | 7,381 |
| Retreated— | | | | | | | | | |
| Surgical ... | 3,920 | 787 | 612 | 621 | 499 | 446 | 454 | 353 | 7,692 |
| Medical ... | 2,758 | 678 | 886 | 824 | 820 | 625 | 411 | 444 | 7,446 |
| | 12,826 | 2,400 | 2,663 | 2,727 | 2,548 | 2,427 | 1,981 | 1,473 | 29,045 |

| | |
|---|---|
| New cases, construction period | 6,148 |
| New cases, exposition period | 7,759 |
| Total | 13,907 |
| Cases retreated, construction period | 6,678 |
| Cases retreated, exposition period | 8,460 |
| Total | 15,138 |
| Grand total | 29,045 |

DEATHS.

| | |
|---|---|
| Deaths from violence during construction period | 11 |
| Deaths from natural causes during construction period | 5 |
| Total | 16 |
| Deaths from violence during exposition period | 12 |
| Deaths from natural causes during exposition period | 12 |
| Total | 24 |
| Grand total | 40 |

BIRTHS.

| | |
|---|---|
| Births during construction period | 3 |
| Births during exposition period | 4 |
| Total | 7 |

AMBULANCE CALLS.

The ambulance responded to the following number of calls:

| | |
|---|---|
| May | 168 |
| June | 172 |
| July | 210 |
| August | 224 |
| September | 253 |
| October | 191 |
| November | 97 |
| Total | 1,315 |

CLASSIFIED LIST OF CASES.

| | Construction Period. | Exposition Period. | Total |
|---|---|---|---|
| Abscess | 110 | 170 | 280 |
| Abortion | 2 | 8 | 10 |
| Adenitis | 5 | 11 | 16 |
| Alcoholism | 12 | 32 | 44 |
| Appendicitis | 1 | 13 | 14 |
| Arteriosclerosis | 1 | 0 | 1 |
| Asthma | 3 | 10 | 13 |
| Beriberi | 0 | 45 | 45 |
| Bronchitis | 106 | 83 | 189 |
| Burns | 51 | 122 | 173 |
| Common cold | 476 | 201 | 677 |
| Contagious diseases | 43 | 33 | 76 |
| Conjunctivitis | 42 | 123 | 165 |
| Dermatitis (poison ivy) | 27 | 10 | 37 |
| Diseases of skin | 43 | 138 | 181 |
| Diarrhea | 150 | 233 | 383 |
| Dislocations | 12 | 26 | 38 |
| Dysentery | 9 | 9 | 18 |
| Enteritis | 10 | 4 | 14 |
| Epilepsy | 18 | 32 | 50 |
| Epistaxis | 2 | 13 | 15 |
| Exhaustion | 12 | 225 | 237 |
| Exhaustion (heat) | 13 | 0 | 13 |
| Fever, intermittent | 776 | 413 | 1,189 |
| Fever, typhoid | 16 | 7 | 23 |
| Foreign bodies in eye | 110 | 306 | 416 |
| Fractures, compound | 4 | 6 | 10 |
| Fractures, Colles' | 14 | 11 | 25 |
| Fractures, femur | 3 | 5 | 8 |
| Fractures, long bones | 74 | 48 | 122 |
| Fractures, miscellaneous | 43 | 22 | 65 |
| Fractures, skull | 16 | 7 | 23 |
| Fractures, spinal column | 1 | 0 | 1 |
| Frost bites | 6 | 0 | 6 |
| Gastritis | 21 | 26 | 47 |
| Heart disease | 15 | 17 | 32 |
| Hemoptysis | 5 | 9 | 14 |
| Hemorrhoids | 16 | 16 | 32 |
| Hernia | 9 | 6 | 15 |
| Hysteria | 2 | 30 | 32 |
| Indigestion | 291 | 991 | 1,282 |
| Insanity | 2 | 6 | 8 |
| La grippe | 55 | 15 | 70 |
| Laryngitis | 15 | 5 | 20 |
| Nephritis | 2 | 10 | 12 |
| Neuralgia | 49 | 63 | 112 |
| Otitis | 15 | 33 | 48 |
| Paralysis | 2 | 0 | 2 |
| Pharyngitis | 19 | 116 | 135 |
| Pleurisy | 4 | 14 | 18 |
| Pneumonia | 7 | 6 | 13 |
| Poisoning | 3 | 9 | 12 |
| Rheumatism, articular | 56 | 91 | 147 |
| Rheumatism, muscular | 46 | 47 | 93 |
| Sprains | 263 | 222 | 485 |
| Sunstroke | 2 | 0 | 2 |
| Syncope | 17 | 136 | 153 |
| Tonsillitis | 115 | 92 | 207 |
| Tuberculosis | 11 | 3 | 14 |
| Ulcers (unclassified) | 16 | 5 | 21 |
| Vertigo | 16 | 7 | 23 |
| Venereal diseases | 21 | 11 | 32 |
| Wounds, abraded | 45 | 62 | 107 |
| Wounds, contused | 805 | 411 | 1,216 |
| Wounds, incised | 189 | 204 | 393 |
| Wounds, infected | 282 | 349 | 631 |
| Wounds, lacerated | 487 | 414 | 901 |
| Wounds, punctured | 486 | 174 | 660 |
| Wounds, scalp | 185 | 102 | 287 |
| Wounds, gunshot | 0 | 18 | 18 |
| Wounds, unclassified | 5 | 16 | 21 |
| Miscellaneous, surgical | 137 | 491 | 628 |
| Miscellaneous, medical | 221 | 1,166 | 1,387 |
| Totals | 6,148 | 7,759 | 13,907 |
| Retreated | 6,678 | 8,460 | 15,138 |
| Totals | 12,826 | 16,219 | 29,045 |

EXPENSES.

| | |
|---|---|
| Pre-exposition period—<br>Dec. 6, 1901, to April 29, 1904 | $22,052.24 |
| Exposition period—<br>April 30 to Dec 1, 1904 | 14,375.47 |
| Postexposition period—<br>Dec. 2, 1904, to Feb. 15, 1905 | 795.00 |
| | $37,222.80 |

In making this report I cannot fail to form conclusions concerning the work of this department of the Exposition; I believe that a permanent staff, including nurses, is the best, and that one well equipped hospital with an efficient ambulance service, without substations, is the most desirable and efficient in a work of this kind.

# Special Article

## IMMUNITY.

### CHAPTER XV.

### CYTOTOXINS.

Following the discovery of immune hemolytic serums it was a short step to experiments which involved immunization with various other tissue cells, and as a result of such work we are to-day familiar with antiserums for almost every organ of the body.

Metchnikoff gave the name of cytotoxins to those serums which destroy cells other than bacteria and erythrocytes; the word cytolysin is used synonymously. Naturally a serum which destroys any cell whatsoever is a cytotoxin, but according to the rather loose custom which prevails, we may properly recognize bacteriolysins, hemolysins and other cytolysins, including among the latter serums which destroy leucocytes, the cells of the liver, kidney and other organs.

**Cytotoxin or Cytolysin.**

Cytotoxins are of interest, not only because they are produced in accordance with the general laws of antibody-formation, but they have had and perhaps still have a special theoretical importance. Immediately on their discovery the possibility was evident that they might be utilized in the elucidation of certain physiologic and pathologic problems. For example, by putting the thyroid out of function through injections of thyrotoxic serum it might be possible to confirm, or to prove incorrect, certain theories as to the rôle of the gland in metabolism. Or, by the selective destruction of a tissue, facts concerning its regenerative powers might be learned. The use of an antipancreatic serum might throw some light on the nature of diabetes. Therapeutic possibilities also suggested themselves. Anticytotoxic serums might counteract cytotoxins which were being formed in the body. Or, by injecting a small amount of a cytotoxin, perhaps one could stimulate to a renewed production of the homologous cells; small doses of a hemolytic serum might be useful in combating anemias. Or small amounts of leucotoxic serum might cause an increase in the number of leucocytes, and thereby an increased resistance to infection. Per-

**Theoretical Utility of Cytotoxins.**

haps autocytotoxins are formed in some such manner as the following: An extraneous toxic substance causes the destruction of a few kidney cells, the constituents of the latter reach the circulation and stimulate other organs to the formation of autonephrotoxic amboceptors, which then assist in the destruction of more renal tissue, with the result that a vicious cycle is set up.

**Lack of Specificity.**

In spite of so many theoretical values the study of cytotoxic serums has not yielded the results which were anticipated, perhaps chiefly because of their lack of specificity. Although the cells of the different organs may differ widely in their morphology and function there are no doubt certain chemical constituents (receptors) which they possess in common. Of this we have experimental proof from the fact that immunization with one type of cell often yields a serum which is toxic for the cells of various organs. It is difficult or impossible to injure one organ to the exclusion of all others. One may attempt to purify a cytotoxic serum through absorption of the adventitious amboceptors by means of the corresponding cells; inasmuch, however, as the result is a decrease in the chief amboceptors as well as of the adventitious, the desired object was not fully realized. Theoretically the cytotoxic treatment of malignant tumors offers an important field for research. But here, too, various difficulties are involved, as lack of specificity of serums, the multiplicity of cell-types which constitute different tumors, and other points which will be considered later.

**Determination of Cytotoxic Action.**

Experiments with cytotoxic serums may be conducted *in vitro* or in the living animal. In either case a necessary condition for the recognition of the cytotoxic action is the presence of some distinctive sign of vitality on the part of the cell, the loss of which may be taken as evidence of cell-death. Loss of motility and of proliferative power indicate the death of bacteria, and solution of hemoglobin the death of erythrocytes. Under particular conditions loss of motility on the part of certain tissue cells, as spermatozoa, leucocytes and ciliated epithelium, is an evidence of cell death or cell injury. The toxic action of serums on cells of fixed form is more difficult to determine, and for evidence one must rely on such points as clearing of the protoplasm (digestion?), swelling of the cell and nucleus, actual solution of the cytoplasm, or degenerations of the homologous organs when the serum is injected into the living animal.

**Amboceptors, Complements and Anticytotoxins.**

Cytotoxins, like bacteriolysins and hemolysins, are complex substances, in that they consist of amboceptors and complements. The amboceptors alone are increased during immunization, the complement being a normal constituent of the serum of the animal. The phenomena of inactivation and reactivation are observable here as in connection with other cytolytic serums. Anticytotoxins are readily produced by immunization with many cytotoxins; the antiserum usually consists of anticomplement, but in some instances antiamboceptors have been described. Immunization with solid organs is easily accomplished, a necessary preliminary for injection being a thorough disintegration of the tissue by grinding with sterile sand; the resulting mass when suspended in salt solution passes through the injecting needle readily.

**Spermotoxin.**

Simultaneously, or nearly so, Landsteiner in Vienna and Metchnikoff in Paris reported the production of spermotoxic serums by immunization with spermatozoa, the natural motility of which rendered the recognition of cell death easy. The technic which Landsteiner first employed was that of the Pfeiffer experiment in that he immunized guinea-pigs with the spermatozoa of cattle and observed loss of motility on the part of the cells when they were injected into the peritoneal cavity of the immunized animals. Comparable with many other cytotoxins, spermotoxin kills the homologous cell without causing its solution. The loss of motility is also observed in hanging-drop preparations provided a fresh or a complemented serum is used. Most normal serums show a greater or less degree of toxic action for the spermatozoa of other animals, and normal spermotoxins like the immune consist of amboceptor and complement. Metchnikoff claims to have produced an autospermotoxin by immunizing guinea-pigs with the spermatozoa of other guinea-pigs.

When a spermotoxic serum is injected into the living animal it is thought that the amboceptors are taken up by the homologous cells, and this would seem to affect the vitality of the spermatozoa, inasmuch as De Leslie rendered male mice sterile for 16 to 20 days by the injection of the serum.

It is of theoretical interest that castrated animals will yield spermotoxin by immunization, showing that the amboceptors are not of necessity produced by the analogous tissue of the immunized animal. From the fact that spermotoxic serums are hemolytic it is assumed that certain receptors are common to erythrocytes and spermatozoa. Hemolytic serums, on the other hand, may not be spermotoxic. There is nothing contradictory in this lack of reciprocal action, for those receptors which are common to the two cells may not be important for the life of the spermatozoon, whereas the opposite condition prevails with the erythrocyte.

It is certainly of interest that immunization with the plasma of ova causes the formation of spermotoxic amboceptors, a fact which points to certain common constituents of the two cells.

Antispermotoxin may be produced by immunization with spermotoxic serum (anticomplement or antiamboceptor).

**Cytotoxin for Ciliated Epithelium.**

Following technic similar to that employed by Landsteiner, von Dungern obtained a cytotoxic serum for ciliated epithelium of the trachea; the cells disintegrated in the peritoneal cavity of the immunized animal but not in that of a normal animal. This serum also proved to be hemolytic in spite of the fact that no erythrocytes were included in the injections. That the receptors which characterize ciliated epithelium are widely distributed is shown by the fact that immunization with cow's milk causes the formation of a cytolytic serum for the tracheal epithelium of the cow.

**Leucotoxin.**

Leucotoxic, lymphotoxic or lymphatotoxic serums are prepared by immunization with exudates which are rich in leucocytes, or with the emulsions of lymphoid organs: lymph glands, spleen, bone marrow. Metchnikoff prepared the first serum of this nature by the injection of the spleen of rats into guinea-pigs. Leucotoxic serums are toxic, not only for leucocytes but also for red corpuscles and endothelial cells. When injected into the peritoneal cavity the endothelium is thrown off, and when given subcutaneously the capillary endothelium is attacked with the result that blood escapes to form a large hematoma. The action of the serum on leucocytes may be observed *in vitro*. The mononuclear cells are often more susceptible than the polymorphonuclears, although this depends somewhat on the animals and the particular organ used for immunization. The cells lose their motility, the cytoplasm becomes transparent, and swells to form a large clear vesicle, which appears to be surrounded by a sharp, thin membrane. The cell contents may be discharged or entirely liquefied, the nucleus alone being recognizable. Leucocytes are agglutinated by the serum. A strong leucotoxic serum may be fatal to the animal when injected into the peritoneal cavity or blood stream, the exact cause of death being obscure.

(*To be continued.*)

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**Hematuria.**—The effect of oxygenated water on blood can be utilized for the detection of the latter in the urine, as pointed out by Sabrazes (*Gaz. Hebd. des Sci. Med. de Bordeaux*). If a few drops of oxygenated water be added to a normal urine of acid reaction there is a slight disengagement of oxygen. If the urine is neutral or alkaline the oxygen is given out much more abundantly. Diabetic or albuminous urine foams perhaps a little more than normal urine. Bile causes very little foam. Any blood content in the urine, however, even if only detectable by the microscope, causes an excessive foaming of the liquid. Pus also causes much foaming, though somewhat less than blood.

## *Clinical Report*

### A METHOD FOR MAKING PERMANENT MOUNTS OF SPECIMENS STAINED BY WELCH'S CAPSULE METHOD.

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NEW YORK CITY.

For purposes of demonstration it is often advantageous to be able to make permanent balsam mounts of specimens stained by Welch's capsule method. I have frequently employed the procedure, which I describe, in making preparations from the blood and exudate of white mice, guinea-pigs and rabbits infected with the pneumococcus and with the *Streptococcus mucosus capsulatus.*

It is well known that the best pictures are obtained when the specimens are mounted in some fluid, such as the 2 per cent. watery saline solution. The capsules of the pneumococcus and *Streptococcus mucosus capsulatus,* taken from infected animals, when stained by the Welch method, present a fairly well limited, almost hyaline appearance when examined in a fluid. If such specimens be dried and mounted in balsam, the capsules are no longer visible. At times a number of faintly stained, poorly outlined capsules will remain, but only very rarely can a good preparation be obtained if balsam be used.

The following procedure will enable one to make satisfactory balsam mounts:

After washing off the gentian violet solution with a 2 per cent. saline solution, the specimen is rapidly flushed with a 5 to 10 per cent. solution of potassium ferrocyanid, dried between filter papers, and mounted in balsam.

Specimens treated in this way are but little changed. The clearness of the general picture and the definition and beauty of the capsule suffer somewhat, but the results are satisfactory and permanent. If desired, the preparation may be examined first in the salt-water and then may be made permanent by this method.

I have examined the subcutaneous and peritoneal exudates of a large number of white mice and guinea-pigs, inoculated with the pneumococcus and *Streptococcus mucosus capsulatus* by means of the Welch stain and have often found that the following "rapid" modification has been time saving and has given eminently satisfactory results.

When the exudates are thin, as a rule they can be spread on a cover-slip without a diluent. The procedure may be outlined as follows:

1. Spread on a cover-slip and fix by heat.
2. Glacial acetic acid, five seconds; drain off.
3. Flush twice with anilin-water gentian violet.[1]
4. Saline wash, and mount; or
5. Flush with a 5 to 10 per cent. potassium ferrocyanid solution, dry with filter paper and mount in balsam. A preparation can be completed in from 30 to 40 seconds.

A similar method has proved successful in the preparation of permanent mounts of specimens stained by the capsule method which I recommended in a previous article.[2] It has been found applicable to specimens made from cultures as well as from exudates.

Although the employment of the rapid method, with or without the potassium ferrocyanid solution, has regularly given me good results in the exudates of test animals, my experiments with sputum have been too few to warrant drawing any conclusions in regard to it. Specimens of exudates containing the pneumococcus and the *Streptococcus mucosus capsulatus,* stained in the way described and mounted in balsam, have not undergone any change after a period of three months. It seems very probable, therefore, that they will remain permanent after the lapse of even a longer period of time.

---

[1] A weaker anilin oil gentian violet solution than is ordinarily employed for the Gram stain has been found just as serviceable. It is made up as *follows:* Anilin oil 10, water q. s. 100. Shake, filter; add 5 c.c. saturated alcoholic gentian violet solution.

[2] Medical News, Dec. 10, 1904.

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## *New Appliance*

### THE GAVIN OPERATING ROOM BASIN.

S. GRIFFITH DAVIS, M.D.
BALTIMORE.

About eight years ago Dr. F. D. Gavin, superintendent of the Church Home and Infirmary, devised a simple basin for the operating room. This basin has given so much satisfaction that it may be well to bring it before the profession.

As can be seen from Figure 1, it consists of a frame which fits into the usual rectangular basin sink. This frame is composed of silver-plated tubing about three-eighths of an inch in diameter. Occupying the center of the frame is a circular opening into which an ordinary porcelain basin can be placed. The ring that supports the basin revolves from right to left through a quarter of a circle.

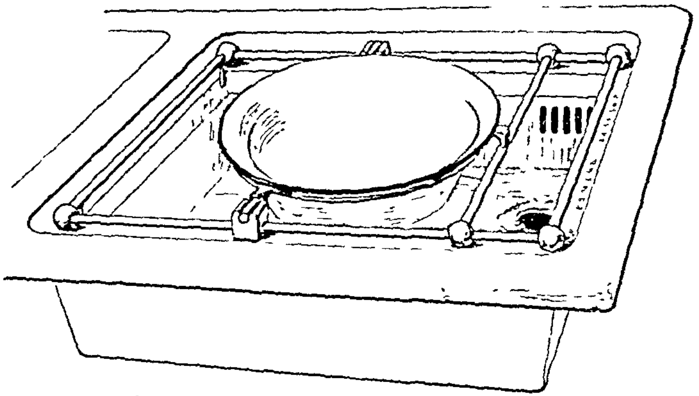

Figure 1.

The basin is easily emptied by the hands in the basin. The left hand presses downward, the right prevents the basin from tipping over too far. The lever principle is employed, the axis or revolving point being two-thirds of the distance toward the left of the circle (Fig. 2).

The chief advantages of this basin are:

1. It is very simple and cheap.
2. If out of order it can be repaired by any machinist.
3. It will accommodate a simple porcelain basin that can be purchased in any hardware store.

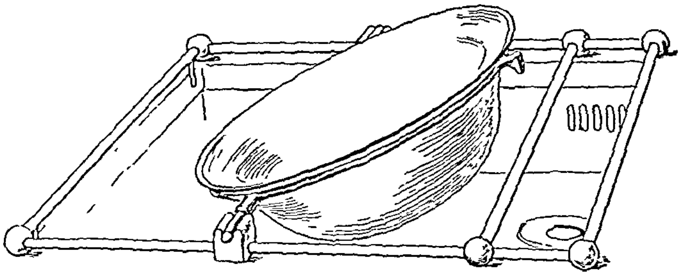

Figure 2.

4. The frame and basin can readily be placed in the sterilizer and steamed.
5. Fresh basins can be used for each operation.

The complete frame and basin should not cost over five dollars. That they have answered their purpose well is evidenced by the fact that those employed at the Church Home have been in continuous use for over eight years.

The question of the foot treadle and of continuous running water has purposely been omitted, as these may be adapted to this or to any other basin.

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## THE CURE OF CANCER BY X-RAY.

The determination of the limitations and possibilities of the therapeutic application of $x$-ray is undoubtedly one of the important questions before the profession today. The whole subject of radiotherapy is one which appeals strongly to the imagination and to popular interest. Two years ago it was suggested that in time the use of radium would supplant the use of $x$-ray and the subject of the therapeutic use of radium was one which excited great popular interest. But radium has not thus far fulfilled its early promises as a therapeutic agent, and interest in it has subsided. With $x$-ray the situation is different. It is being widely used, and, it is to be feared, a good deal abused, and it is therefore highly important that there should be a definite comprehension of its field of usefulness.

The report in this issue of The Journal by Dr. Pusey, in which he gives his results of the use of $x$-ray in various affections, more particularly malignant tumors, is presented in so careful and conservative a manner that there is little or no danger of arousing unfounded hopes. In the face of evident temptation to advance extravagant claims, Dr. Pusey continues to maintain a critical attitude which is highly commendable. The use of $x$-ray in the treatment of malignant tumors is wholly empirical. An enormous amount of experience and observation is necessary before the exact limits of its usefulness in this field may be determined. At the present time we have little evidence that $x$-ray has any real value in the treatment of internal cancer. It is true that we have reports of recessions, of arrest of growth, even of symptomatic cures of internal cancers during treatment with $x$-ray, but as yet we have no reports of absolute cures that can withstand criticism. The clinical course of cancer, internal as well as external, is variable. Periods of apparent recession follow periods of progress. Every physician and surgeon has observed that patients with cancer sometimes continue to live in comparative comfort even for years after the unquestioned development of metastatic tumors in vital organs. It is part of the natural history of the scirrhous form of carcinoma, for instance, to advance with comparative slowness at the outskirts while in the central part cicatricial shrinking equivalent in many cases to a kind of spontaneous healing is taking place. There is, indeed, very good reason to believe that while the human being "in the majority of cases falls victim to the invasion of carcinoma once started, yet it is not altogether without the calling into operation of opposing forces that this sad result is achieved."

Under these circumstances and at this time a correct estimate of the value of $x$-ray in internal cancer is, therefore, out of the question, and startling reports—"too good to be true"—of the great changes produced in a comparatively short time by $x$-ray in individual cases should not be permitted to unbalance conservative judgment in the slightest degree. Indeed, the publication of reports of the character mentioned, at the very best in every sense premature, is reprehensible because they tend to lessen respect for scientific conservatism and truthfulness of the medical profession.

## APLASTIC ANEMIA.

The hematologic studies of recent years have not only more clearly defined existing blood diseases, but have also brought to light conditions not heretofore known. This has been the case particularly since stress has been laid on the importance of a study of the blood-forming organs as well as of the circulating blood. We are, in fact, coming to recognize more and more that the lesions in the lymph nodes, spleen, and particularly in the bone marrow, are the criteria on which our conceptions of these diseases must be based, and that the blood picture is merely a symptom.

The condition known as aplastic anemia was first described by Ehrlich nearly twenty years ago, but until recently the reported cases have been so few in number that general attention has not been directed to it. Within the last year or two a considerable number of cases has been recorded, and it would seem that the condition is not nearly so uncommon as was at first supposed. Probably many cases have been overlooked on account of the clinical resemblance to ordinary pernicious anemia. As the name indicates, the condition is one in which a clinically grave anemia is unaccompanied by the ordinary regenerative changes in the circulating blood. There is an almost complete absence of nucleated red cells, and, further than this, there is in most cases a great diminution in the leucocytes. As few as 200 white cells to the cubic millimeter of blood have been noted, a truly remarkable reduction from the normal. Qualitative changes of a marked character are also present in most cases. Over 90 per cent. of the leucocytes may be of the mononuclear type, eosinophiles may be entirely lacking over long periods of time, and polynuclears are strikingly rare. The cases may run an acute or chronic course, though the former is more common. Some of them show hemorrhagic tendencies, purpuric skin eruptions, oozing from the mucous membranes, hemorrhages into the retina. Fever and enlargement of the spleen may be noted, as in the cases in old people recently described by Kurpjuweit.[1] The pathologic picture in these cases seems to have varied somewhat, though the variations are not great if we consider all the recorded cases together. It seems likely that the supposed variations are merely different stages of the same process. Superficially scanned, the complete bone-marrow aplasia which has been found in some cases seems pathologically irreconcilable with the complete lymphoid hyperplasia which has been found in others. A search of the literature shows, however, that intermediate cases exist. There are cases on record in which aplasia was present in the marrow of some bones, while lymphoid hyperplasia existed in the marrow of others. Again, there is at least one case, that of Wolff, in which to the naked eye aplasia was present, though smears of the marrow showed the qualitative changes of lymphoid hyperplasia. It seems quite possible, in fact probable, that the condition of aplasia is a terminal one, and that at some time a lymphoid hyperplasia is present in all cases.

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[1] Deutsches Archiv für klin. Medizin, vol lxxxii, Nos. 5 and 6.

A question naturally arises as to the nature of this lymphoid hyperplasia. It is essentially the lesion ordinarily found in the bone marrow in lymphatic leukemia. Inasmuch as cases of lymphatic leukemia with lesions only in the bone marrow are now well recognized, we can see no reason why aplastic anemia should not be regarded as an atypical form of this disease. We know that in other cases of lymphatic leukemia the number of leucocytes in the circulating blood may be normal or even subnormal. Why should we not have a combination of these two unusual types in some cases? Certainly this assumption helps us to explain both the leucopenia and the lack of red-cell formation. If we assume, as Senator does, that the hyperplastic lymphoid cells of the bone marrow are the parent cells of both the erythrocytes and the granular leucocytes, their proliferation, with failure to differentiate, explains the whole process. It is true that this is only an hypothesis, but it is such a reasonable one that it seems worthy of provisional support until it is either confirmed or disproved by future observation.

## A NEW FORM OF SERUM DIAGNOSIS.

The agglutination test of serum is now universally employed in all hospitals and to no small degree also in private practice in the diagnosis of typhoid fever and kindred diseases. There are other diseases in which a practicable serum diagnosis would be a welcome addition to our diagnostic armamentarium, e. g., staphylococcus infections. Staphylococci may cause hidden abscesses, acute endocarditis, and peculiar solid chronic inflammatory swellings of bones that often are difficult to distinguish from genuine tumors. Specific agglutinins do not appear to develop to any extent in staphylococcus infections, but it has been shown that all pathogenic staphylococci produce a hemolysin and furthermore, that this lysin is a genuine toxin because it gives rise in animals (including human beings) to an antitoxin.

Bruck, Michaelis and Schultze[1] propose to apply the determination of this antilysin to the diagnosis of staphylococcus diseases. They assume that in every staphylococcus infection there must arise at some time a demonstrable increase of the normal antistaphylolytic powers of the serum. They determined that in the case of normal serum 0.1 c.c. is, as a rule, sufficient to neutralize 0.05 c.c. of staphylococcus filtrate, which quantity contains, on an average, sufficient lysin to lake one drop of fresh rabbit blood. In 19 of 25 sera from patients with definite staphylococcus infection the antilytic power was increased from 10 to 100 times that of normal serum. In the remaining 6 cases the authors found considerable increase in antilytic power, but they think that the relative low degree of increase was due to the recent date of the infections. It seems that the antilysin develops gradually and, of course, the reactive faculty of various persons may vary considerably. So far as we know now, this antistaphylolytic reaction is specific.

It would seem that we have here an interesting specific reaction that merits further clinical study on account of its probable diagnostic value. It concerns a new step in the use of laboratory methods in clinical diagnosis. Perhaps the busy practitioner may say that this test is not practical because it necessitates the facilities of the laboratory and considerable skill and experience in a rather new form of experimentation. Clearly this work is yet in the experimental stage, but it shows well the relation between biologic studies and clinical medicine, a relation of so undoubted benefit in a practical way that the practitioner can not afford to ignore it wholly. So long as practitioners are constrained by virtue of diagnostic inability to make exploratory operations for diagnostic purposes will there be need for new and refined means of diagnosis.

## TRUTH AND POETRY CONCERNING URIC ACID.

### XVII.

We have reviewed in considerable detail, as we promised to do, the important work that has been done on this subject. The processes of uric-acid formation, excretion, destruction, retention, deposition and solution in health and disease have, one by one, been considered, and we have sifted as carefully as possible what we consider the wheat from the chaff. In a subject so complex it would be surprising if we did not include some worthless matter among the wheat and discard as refuse at least a little valuable grain. Despite the immense amount of work which has been done, it is surprising what a small bulk of well-determined fact has been accumulated and how much time and trouble have been required to prove the unreliability and harmfulness of a majority of the speculative views which have been advanced. Though the bulk of facts is not large, their value is precious, and we will do well to hoard them jealously, and to rejoice that we may consider them by themselves, uncontaminated by the paltry rubbish in which they have been hidden.

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[1] Zeitsch. f. Hyg. u. Infektionskr., 1905, vol. l, p. 145.

It is worth much to us on the physiologic side to have grown familiar with the chemical and physical qualities and relationships of uric acid; to have realized its connection with nuclein metabolism; to have become acquainted with the distinction between exogenous and endogenous uric acid of oxidative origin, and between these and the uric acid of synthetic source; to have been informed, even partially, as to the way in which uric acid is destroyed in the body; to have determined, more or less accurately, the localization of the processes of uric-acid formation and uric-acid destruction; and to have recognized that the substance probably circulates in the blood chiefly as mononatrium urate or in combination with an organic acid. On the pathologic side it is important to us to have found out in what conditions deviations from the normal uric-acid relations have been observed and to have discovered that gout is the only disease in which there is yet any strong probability that disturbances of uric-acid metabolism are directly and mainly responsible for the clinical symptoms. It has been shown that uric acid is increased in the blood in gout; that the deposits in the joints and in the tophi in gout consist of crystalline mononatrium urate; that the latter is dependent in all probability on irregularities in uric-acid excretion, including a slight diminution of the amount excreted before an attack and an increase later; that the local deposits at sites of predilection are in some way dependent on unknown local influences; that the acute gouty paroxysm is very prone to occur in the night; that the anomaly of metabolism responsible for gout is often met with in a succession of generations in the same family; that the development of gouty symptoms in the predisposed may be favored by excessive eating, lack of exercise, abuse of alcohol, chronic lead poisoning, and digestive disturbances of various kinds.

The rational treatment of gout will, then, consist, first, in combating the primary disturbance of metabolism; the patient must be protected from all the influences which experience has taught us favor the development of gout. In addition, the effort may be made to prevent the accumulation in excess, or the deposition, of uric acid or urates in the body. This has been attempted in various ways: (1) by lessening the amount of uric acid formed in the organism, (2) by trying to increase uric-acid excretion, (3) by increasing uric-acid destruction, and (4) by making the effort to increase the solubility of uric acid in the blood and tissue juices.

The formation of exogenous uric acid is largely within our power; the amount can be diminished by limiting the forestages of uric acid—nucleins and purin derivatives—in the food. Hence in gout the eating of sweetbreads, liver and kidneys—all rich in nucleins—should be prohibited, and the amount of meat and meat soups permitted should be small. Peas and beans are also rich in purin bodies and should be sparingly allowed. The well-known harmfulness of beer in gout has been attributed by some to its relatively high purin content. The temporary relief afforded by purgatives may be due, in part, to the sweeping out of forestages of uric acid from the intestine before they are absorbed. There is no certain proof that drugs can diminish uric-acid formation, though Weiss has ascribed such an action to china acid. A large number of the much-vaunted "gout specifics" consist of this china acid combined with other drugs, e. g., urosin (china acid with lithium), sidonal (china acid with piperacin), chinotropin (china acid with urotropin), urol (china acid with urea) and "new sidonal" (china acid anhydrid). If china acid affects the symptoms favorably at all, we do not know how it does so; it has been suggested that, being tetraoxybenzoic acid, it is more or less allied to salicylic acid (monoöxybenzoic acid) and so may, like the latter, exercise a pain-stilling effect.

To increase uric-acid excretion the best means we have is to increase the secretion of urine, and that is best effected by copious water drinking; mineral water or any pure table water will do. Whether or not it is possible directly to increase uric-acid excretion by drugs is still disputed. It is thought by some that the salicylates (salicylic acid, salol, aspirin—monacetic-acid-ester of salicylic acid—etc.) increase the excretion of uric acid; others believe that they increase uric-acid formation, and still others think that the amelioration of symptoms caused by them in gout is due only to their pain-relieving and diaphoretic actions. Ideas as to their effects are merely preconceived; they have not yet been subjected to adequate experimental control.

Attempts to increase uric-acid destruction in the body have frequently been made, but there is no proof that there is any general diminution of the oxidative processes in gout, nor is there any basis for the view that drugs hasten uric-acid destruction, though alkalies, oxygen inhalations, thyroid tablets and spermin have all been recommended for the purpose!

The hypothesis which has appealed most to the profession and to the laity, and the one which, on the whole, has proved most profitable to the drug manufacturers, is that which attempts to prevent uric-acid deposits and gouty conditions by trying to increase the solubility of uric acid in the blood and tissue juices. Alkalies and especially bases which form very soluble salts with uric acid have been suggested for this purpose. The attempts are futile for two reasons. In the first place it has not yet been found possible, owing to the complexity of the blood and the tissue juices, to produce in them exactly the form of urate, the solubility-conditions of which are the most favorable. In the second place, the studies of His and Paul, applying the modern conceptions of physical chemistry, have shown that the solubility of any urate in the blood is decreased by the sodium salts of the blood. It does no good to bring into the solution along with mononatrium urate other bases whose uric-acid salts are more soluble than sodium urate; for physical chemistry has shown that on bringing an acid together with several bases the first salt to fall out is that whose "solubility product" is smallest. This fact holds not only for inorganic bases, like lithium, but also for organic nitrogenous bases, like piperacin (di-ethylen-diamin) and lysidin (ethylen-ethenyl-diamin), from which so much was expected. The whole group, therefore, of so-called "antilithics" and "uric-acid solvents" based on the above theory is robbed of any scientific support. If uric acid is to be rendered more soluble in the blood, it must be, therefore, by the formation of some easily soluble combination with other organic atom-complexes, with production of substances which are not dissociable, i. e., are not "salts." Uric-acid and thymin acid (the phosphorus-containing residue of nucleinic acid) may combine in this way; the use of thymin acid (nucleotin-phosphoric acid) has been recommended in gout, but the pure substance is not yet commercially available for the purpose; the preparations on the market said to be pure contain in reality quantities of purin bases, and the increased excretion of uric acid following their administration may be due to the uric acid made by the body from the impure chemical itself. Indeed, some investigators doubt the existence of the substance called thymin-acid. Another substance with which uric acid forms a non-saltlike compound is formaldehyd, and it has been shown that on giving hexamethylene tetramin[1] the formaldehyd split off from it in the body appears in the urine as easily soluble diformaldehyd-uric acid. Another combination called citarin (formaldehyd combined with citric acid) is said to act similarly. It is as yet doubtful whether such substances ever exert any beneficial effect in gout. In addition to the preparations named many others are on the market, some of them of known composition, others advertised with vague statements regarding their content.

On the whole, the best that can be hoped from drugs at present in gout appears to be the relief of pain by the various antineuralgic substances, such as the salicylic preparations, with which every one is now familiar. One drug deserves especial mention here, and that is colchicum. It has an enviable empirical reputation. It can be used as tincture or wine or as pure colchicin, the latter given in pill form, 1/100 grain (.001 gram) in each pill. In acute attacks one pill may be given every half-hour or hour until three or four have been taken.

The best treatment of gout—the mainstay of therapy in the disease—consists in a well-regulated regimen. The diet must be carefully chosen and rather spare, as a rule. It should consist of 100 to 120 grams albumin, 80 to 100 grams fat and 250 to 300 grams carbohydrates (Minkowski). The amount of animal food should be moderate, that of easily digestible vegetable food more liberal. Pastry, confections, sharp sauces, mayonnaise, mushrooms and all foods hard to digest are to be proscribed. Alcohol and coffee should be forbidden or used in minimal amounts. Very weak tea may be permitted, but waters (especially slightly alkaline mineral waters) form the best drink. Two hours or more of gentle exercise in the open air daily, where not contraindicated, should be enjoined. In acute attacks rest and local applications are necessary. For the tophi or chronic residues in the joints local phagocytic activity may be excited by means of hot applications and massage.

After all, it may turn out that disturbances of metabolism, of a nature unguessed as yet by us, may be more important in the pathogenesis of gout than the disturbances of uric-acid metabolism discussed in this review.

## THE THYROID AND THE REPRODUCTIVE FUNCTIONS.

The most evident and best known functions of the thyroid are those connected with the processes of metabolism and with certain nervous phenomena, but it is also certain that the thyroid has a marked influence on sexual functions, particularly in the female. The swelling of the gland during menstruation, sexual activity and pregnancy, its relatively greater size and much more frequent disease in the female, are all evidence of this influence. Myxedematous patients are usually sexually inactive, and cretins generally fail to mature, although rare instances of pregnancy in cretins have been reported. As the thyroid does not normally functionate to any considerable extent before birth, the mother is called on to furnish thyroid secretion both for her offspring and for herself. Halsted observed that puppies whose mothers had been deprived of most of the thyroid before pregnancy had very much larger thyroids at birth than normal puppies, indicating an attempt at compensatory hypertrophy. Certain clinical observers have believed that the thyroid has an important relation to eclampsia, stating that in eclamptic women the hypertrophy of the gland which is normal during pregnancy is usually absent.

During his numerous experiments on the treatment of exophthalmic goiter with the serum and milk of thyroidectomized goats, which we recently discussed editorially,[1] Lanz[2] has had occasion to observe the effects of thyroidectomy on a large number of such animals. Goats, like all herbivora, seem to need the thyroid much less than does man or the carnivora, for they can live long without a trace of thyroid tissue, yet even in them the sexual and reproductive capacity is greatly decreased when the thyroid is missing. A large proportion of them show no sexual activities, many of the others do not become pregnant, or else abort, and the number of offspring that can be obtained is small. Such offspring are very abnormal, being small, poorly-formed weaklings, seldom maturing sexually and showing many of the features of cretinism. It is well known that cretinism is particularly likely to occur in the children of women with diseased thyroids, and is hence most prevalent in the districts where goiter is endemic.

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[1] This substance is on the market under the names urotropin, cystogen, aminoform, formin, etc.

[1] THE JOURNAL A. M. A., Jan. 7, 1905, p. 41.

[2] Beitr. zur klin. Chirurg., 1905, vol. xlv, p. 208.

From these studies it may be deduced that the thyroid extract has a field of usefulness in certain conditions related to obstetrics and pediatrics other than frank cretinism and myxedema. In women with goiter who become pregnant, the advisability of cautious use of thyroid extract to supplement the function of the diseased organ during this period of increased demand is worthy of careful consideration. So, too, in the cases of children of either sex in whom maturation is unduly delayed, the possibility of deficient thyroid function exists, and offers a rational ground for thyroid medication, even when there may be no definite evidences of cretinism. Such treatment needs always to be undertaken with great caution and careful observation, for thyroid extract is by no means a simple and harmless agent—it must always be administered with a careful eye on physiologic conditions which it may profoundly modify.

## SEROTHERAPY IN PNEUMONIA.

Since the unsuccessful attempt of Pane in 1898 but little has been accomplished in the line of specific serotherapy in lobar pneumonia. Later, however, our theoretical knowledge of the principles which underlie the production of sera antagonistic to bacteria of the pneumococcus class has greatly increased, thanks to Ehrlich and his coworkers. It is now generally believed that the spontaneous healing of pneumococcus infections is due to the production of bacterial antibodies rather than of antitoxins. In other words, a serum to be curative for pneumonia must possess bactericidal rather than antitoxic properties. There are many theoretical difficulties to overcome in the production of such a serum, if we assume that Ehrlich's views are correct. According to his theory specific immune bodies (amboceptors) combine on the one side with bacterial cells and on the other with complements produced by the body cells. Both amboceptors and complements are necessary to produce a bactericidal effect. Unfortunately, the complements are unstable bodies and can not be preserved in a serum, and consequently our antibactericidal sera contain only amboceptors. The complement must be supplied by the patient or introduced with fresh serum. To supply complements artificially is difficult, as the introduction of foreign complements may lead to the formation of anticomplements and defeat our aim. Practically, the action of the amboceptors depends on the complements remaining in the body of the patient, and as the disease may restrict complement formation the most powerful antiserum may be insufficient or useless. At present there is no known means of artificially stimulating the formation of complements. Furthermore, the bactericidal action of serum may be valueless even though plenty of amboceptors and complements be present. In order to work the two must combine, and this they will not do under all circumstances. The same organism injected into different animals produces different kinds of amboceptors, and these will combine with the complements of some species but not with those of others. The greater the number of amboceptors a given serum contains the greater the chance that they will combine with the complements of a given species. Then again, different varieties of a bacterial species vary in their combining power with different amboceptors. In the case of the pneumococcus, Roemer has attempted to obviate these difficulties by injecting different species of pneumococci into different kinds of animals and mixing the sera. In this way he has produced a serum which is polyvalent in a double sense.

Pässler[1] has recently reviewed the results which have been obtained with such a serum in the Leipzig clinic. His conclusions are based on a study of 24 cases and, making due allowance for the small number of cases, the results are certainly encouraging. Comparing the cases treated with Roemer's serum with those of the previous year, one is forced to conclude, making all allowance for the well-known variability of pneumonia epidemics, that something has been accomplished. The most marked improvement seems to occur in the general condition of the patients, severe cases taking on a milder course, and complications being rare. The duration of the disease seems to be appreciably shortened, the temperature is in many cases markedly reduced, and the tendency of the disease to spread to neighboring lobes seems to be less than is usual.

The method of action of the serum is not clear, though it gives the impression of being bactericidal rather than antitoxic. The number of pneumococci in the sputum is said to be unaffected, but in cases of pneumococcic septicemia those in the blood disappeared. An encouraging sign is the conservatism with which the author draws conclusions, and the reserve with which he advocates the use of the serum. It is not advocated as a specific and its use is advised only in severe cases and in patients whose resistance is lowered from alcoholism or intercurrent disease. One receives the impression that the outlook for a successful serum treatment of lobar pneumonia is a little more hopeful than it has been heretofore.

## SAFEGUARDS FOR DUELISTS.

It has been facetiously declared that the greatest peril undergone in a French duel is that of catching cold. There are, however, possibilities of being scratched and consequently the introduction of pathogenic germs under the skin. We do not know the kind of weapons used, but we presume that they are like those described by Daudet in his "Immortals," with a nice little groove in the side for the blood to run down the blade. Hence, the greater chances for contamination. Of course, they would be disinfected, but this might not be altogether effectual. The persons of the combatants themselves may also furnish bacilli that only want to be introduced below the protecting cuticle. Certain of our French confrères, therefore, have devised still further protections. The combatants must take certain medicines over night, and on reaching the field of honor be soaped and scrubbed from head to foot, rubbed down with alcohol and sprayed with corrosive sublimate. Then, supplied with the necessary amount of sterilized clothing, the performance may begin. The real danger of catching cold, however, seems to have been somewhat neglected and it might be well to suggest that the participants be thoroughly examined by physicians as to the condition of their lungs. It has been shown by Fluegge and others that a consumptive by coughing or even speaking may project droplets containing tubercle bacilli a distance of several feet, and in even the moderate exercise of a French duel one should be protected also from this peril. With these and proper precautions against the inclemencies of the weather, it would seem that French duelists ought to be particularly favorable insurance risks. As a lay contemporary suggests, the action of the French physicians looks a little like a "fine bit of professional satire" on that traditionally safe transaction, the French duel.

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[1] Deutsches Archiv für klinische Medizin, vol. lxxxii, Nos 3-4, 1905.

## INSANITY AND RELIGIOUS EMOTION.

A certain asylum superintendent is credited with the remarkable statement that there is no greater crime against the state than holding religious revivals; he considers religious enthusiasm as one of the chief causes if not the chief cause of insanity. It is odd that this discovery has not been made before by the many competent alienists who have studied the causation of insanity. Religious excitement, in common with other varieties of emotional stress, such as domestic troubles, business failures, political campaigns, etc., has been generally recognized as a cause of insanity, but only as a secondary one and usually only as an exciting cause in specially unstable subjects. In fact, the greatest extravagances in religious revivals and the highest expression of emotionalism in religion occur in the communities where actual insanity is comparatively infrequent. The negroes have always been especially subject to such exciting causes, but before they received their freedom, with its responsibilities and lack of compulsory moral restraint, insanity was a rare occurrence among them. Religious revivals, properly conducted and even if accented with some emotional excesses, are not specially conducive, according to the observation of most alienists, to serious or permanent mental disorder. There is far greater danger in this regard from a certain kind of morbid religiosity which is quite different from the noisy excitement of a revival and in this case also we must look back of the apparent cause to a pre-existing state of mental instability.

## THE MENSTRUAL FEVER OF CONSUMPTIVES.

The great necessity in pulmonary tuberculosis is a means of early diagnosis. Perhaps we overlook the fact, in our hunt for specific diagnostic and curative means, that the clinician who makes the early diagnoses is the one who puts together the minor symptoms and signs, rather than the one who waits for striking and characteristic phenomena. It is well that we should note in this disease, as in others difficult of early diagnosis, those slight deviations from the physiologic which often occur and which are often overlooked. It has long been known that in women with outspoken pulmonary tuberculosis there is often a febrile crisis which can announce and accompany the menses. It is perhaps less well known that in very early cases fever may occur only at the menstrual period. The natural history of such cases has lately been exhaustively studied by Sabourin.[1] He shows that this fever is accompanied by an increase in the physical signs in the lungs, which probably accounts for the phenomenon. The observations of this author suggest that in all doubtful cases of tuberculosis in women it is well to examine the chest at the time of the menses, and they also suggest the necessity of greater care than usual at this period in the treatment of the disease.

## THE PENNSYLVANIA OSTEOPATH BILL.

Governor Pennypacker of Pennsylvania has vetoed the bill passed by the legislature to legalize and to regulate the practice of osteopathy in that state. In his veto message he says that he has examined the bill carefully and can not obtain from its text or from the published statements of the founder of this so-called science a sufficiently definite idea of what it really is. Assuming that it has some scientific truth which is to be utilized by the osteopathic practitioners in the cure of disease and by them exclusively, he sees a certain injustice in the act. With what propriety can the legalized practitioners of medicine and surgery in Pennsylvania be prevented from using, and their patients from being benefited by, such acquisition? On the other hand, why should the osteopaths be prevented, as they voluntarily propose to be, from using whatever is beneficial to the sick in drugs or surgical operations? "If both drugs and surgery are useless," he says, "they may be rejected, but if they should at (any) time be found to be beneficial why should any science for the enforcement of a theory make the effort to exclude their use?" He says if this bill should become a law any physician who should attempt to practice what the osteopaths have discovered would be liable to punishment by imprisonment for ninety days. The whole idea of different schools of medicine, he remarks in a general way, is unscientific and every one engaged in the treatment of the sick should seek the truth wherever it may be found and utilize it. He calls the bill an "anomaly in our legislation" on the subject and therefore withholds his approval. In our columns this week, attention is called to another point by the president of the Pennsylvania Board of Medical Examiners, namely, that the osteopathy bills which have been offered in certain of our legislatures, including that of Pennsylvania, contain clauses authorizing licensure on a diploma alone, provided it has been issued by a so-called reputable college of osteopathy. Such a provision completely emasculates all such laws so far as they claim to protect the public. The object is sufficiently clear. The diploma mills of the osteopath must have business and this must not be imperiled by even a so-called examination in physiology, anatomy, etc., by a board of osteopath examiners. The fact is that bills with this clause leave the whole matter as wide open as possible and it would be well to have the public and the profession, as well as the legislatures, informed as to the presence of this little card up the sleeve. "For ways that are dark and tricks that are vain," the various faddists, osteopaths included, are somewhat peculiar. A veto message like that of Governor Pennypacker will do much good and, further, it will help to hide a multitude of possible executive sins.

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[1] Revue de Medecine, vol. xxv, No. 3.

## *Medical News*

### ALABAMA.

**Personal.**—Dr Humphrey B. Thompson, Tuscumbia, has returned from Europe.——Dr. Willie F. Cobb, Barlow Bend, was brought to Camden for treatment, April 19, suffering from an accidental gunshot wound of the face.——Dr. Samuel C. Cowan, Union Springs, is ill with typhoid fever.

### ARKANSAS.

**Changes on Hot Springs Register.**—The Secretary of the Interior has ordered the names of Drs. J. C. Parish and M. W. Purifoy stricken from the list of registered physicians of Hot Springs, and the addition to the list of Dr. J. W. Bush.

**Memorial Hospital Appointments.**—The following staff appointments have been made for the Logan H. Roots Memorial Hospital, Little Rock: Visiting surgeons—Drs. William C. Dunaway and Carle E. Bentley; visiting physicians—Drs. Frank L. French and Rezin W. Lindsey, and ophthalmologist, Dr. Charles C. Stephenson.

**Prefer Sanitation to Salvation.**—The authorities of Little Rock, threatened with an invasion by "Jeters Host," a band of negroes marching from Pine Bluff to show the inhabitants of the capital city the errors of their ways, were stopped by health officers, five miles from the city, vaccinated and not allowed to enter Little Rock.

**The Smallpox Situation.**—The conditions at the state penitentiary and at the state convict farm, Cummins, Lincoln County, have improved. The eight patients at the penitentiary are improving, and the one case and two suspects at the convict farm are quarantined, and the other convicts have been vaccinated.——Yellville has eight cases of smallpox.

**Graduation.**—The twenty-seventh class graduated from the Medical Department of the University of Arkansas, Little Rock, 32 in number, received diplomas April 12. Dr. Edwin Bentley, dean of the medical department, presided; President Henry S. Hartzog of the university delivered the annual address, and Dr. William C. Dunaway, Little Rock, the faculty address.

### CALIFORNIA.

**Afflicted with Diphtheria.**—It is reported that there are 70 cases of diphtheria in and around Benicia and that the public schools have been closed on account of the disease.

**Personal.**—Dr. Thomas M. Hayden has been chosen health officer of Fresno.——Dr. Daniel E. Osborne, St. Helena, has been elected president, and Dr. Edwin Z. Hennessey, secretary and treasurer of the Napa County Board of Health.

**Licensed to Practice.**—Dr. C. La Verna Carvin, Oakland, who was arrested a year ago at the instance of the Board of Medical Examiners, on the charge of practicing medicine without a license, was acquitted, passed the examination and has now been granted a license to practice.

**Fabiola Hospital *Receives Legacy*.**—The bequest of the late Mrs. Theresa L. Merchant, Oakland, for the benefit of the Oakland Red Cross Society or some soldiers' hospital managed by the society, which now amounts to $3,100, has been paid over to Fabiola Hospital on its promise to keep and maintain a room for the care of soldiers.

**Health Officers Meet.**—At the annual meeting of the California Public Health Association in Riverside, April 17, Dr. Edward von Adelung, health officer of Oakland, was elected president; Dr. William Simpson, health officer of San Jose, vice-president, and Dr. Newel K. Foster, Sacramento, secretary of the State Board of Health, was re-elected secretary-treasurer.

### ILLINOIS.

**Blessing Hospital Staff.**—At the annual meeting of the medical staff of Blessing Hospital, Quincy, Dr. Edmund B. Montgomery was elected president and Dr. Ernest Zimmermann, secretary.

**Personal.**—Dr. Karl F. Snyder has returned to Freeport, after an operation for ulcer of the duodenum, much improved in health.——Dr. Frank Anthony, Sterling, has been re-elected a member of the council of the United Spanish War Veterans' Association.

**Bills Not Passed.**—The general assembly adjourned *sine die*, May 6, leaving unpassed the six osteopathic and two optometry bills, and one anti-vivisection bill introduced since February 1.——House bill 495, providing that physicians attending court as expert witnesses shall be entitled to receive a sum of $10 for each day's attendance, failed to become a law. This bill was not supported by the medical profession.——House bill 577, giving the State Board of Health sanitary supervision over the lodging houses in Chicago, also failed of passage. The jurisdiction of the board in these lodging houses is now limited to cubic-air space.

**Defeat of Osteopathic Bill.**—The committee on judiciary of the house of representatives gave a hearing on Senate Bill No. 311 May 4. The physicians present at the hearing were Drs. William A. Evans, Robert B. Preble, and George W. Webster, Chicago; William K. Newcomb and Charles B. Johnson, Champaign; Munroe G. Reynolds, Aledo, and James A. Egan, Springfield, secretary of the State Board of Health.——Drs. Evans and Webster spoke against the passage of the bill. The committee, by a close vote, ordered that the bill be sent out with the recommendation that it be not passed. On the following day the bill was tabled in the house of representatives.

**Bills Passed.**—The following is a synopsis of bills of especial interest to the members of the medical profession, passed by the house and senate of the 44th general assembly: House 119, prohibiting the embalming or preparing for transportation of dead bodies except by persons licensed by the State Board of Health, and providing for examination and license; House 121, placing the employes of state charitable institutions under civil service; House 182, empowering overseers of poor to provide treatment for patients afflicted with rabies, under the direction of the State Board of Health, appropriating $2,000; House 330, providing for the location, erection and maintenance of a state sanatorium for consumptives, appropriating $25,000: House 414, providing for the sale and free distribution of diphtheria antitoxin under the direction of the State Board of Health; Senate 158, placing physicians and nurses of the Cook County Hospital under civil service; Senate 225, establishing a state board of examiners for nurses, and providing for examination and license; Senate 226, creating a state board of dental examiners and providing for the regulation of the practice of dentistry.

#### Chicago.

**A Healthy April.**—Notwithstanding the excess of mortality among children under five years of age the completed returns of deaths for the month show April to have been one of the most healthful Aprils on record. The annual rate, 1,398 per 1,000 of population, is only 0.12 higher than that of April, 1897—the lowest in the 63 years from 1843-1904, inclusive. The total number of deaths was 2,287, of which pneumonia caused 330, and consumption 315.

**Last Week's Deaths.**—Despite an unusual number of deaths reported from violence——11 from suicide and 40 from other forms—the total mortality is but 3 more than that for the previous week. Pneumonia temporarily again assumed the lead, with 85 deaths, while consumption fell from 83 of the week before to 74. No marked changes among other important causes of death are noted, and the generally satisfactory conditions of the previous month continued, except, of course, as to measles and whooping cough. The under-5-year deaths are 21 fewer than during the previous week.

**Will Make Serums.**—It is announced that the Memorial Institute for Infectious Diseases of Chicago has established a serum division as a branch of its scientific and experimental work. This division will undertake the preparation of various curative and protective sera and will also prosecute investigation into some of the problems of immunity and serum-therapy. In connection with this work it is expected that a limited amount of diphtheria antitoxin will be available for distribution at cost. Professor Edwin O. Jordan, of the University of Chicago, has been placed in charge of the serum division, and preparations for the new work are now well under way.

### MARYLAND.

**Acquitted.**—The second trial of Dr. Joseph C. Ohlendorff, charged with causing the death of Margaret Hale by malpractice at the Beltsville Sanitarium, Upper Marlboro, was concluded, April 28, by a verdict of acquittal. On the first trial he was found guilty of manslaughter.

**Personal.**—Dr. Charles A. Wells has been elected mayor of Hyattsville for the fourth successive term.——At a meeting of the sanitary officers of Baltimore County, May 3, Dr. James F. H. Gorsuch, Fork, the president, resigned, and Dr. Charles L. Mattfeldt, Catonsville, was chosen in his place.

### Baltimore.

**No Money for Hospital.**—All hope of an infectious diseases hospital has vanished for this year, it being discovered that there is no money available for the purpose.

**Interne Examinations.**—The examination for the selection of six internes for St. Joseph's Hospital was held, April 25. Of 28 men who had applied for permission to enter the competition, 18 reported, but two withdrew after two questions, which were rather hard, had been read.

**Personal.**—Dr. George A. Hartman has recently been appointed one of the visiting physicians to St. Joseph's Hospital.——Dr. Elizabeth Hurdon sailed for England April 29.——Dr. José L. Hirsh has been appointed pathologist to the Hospital for the Women of Maryland.——Dr. George L. Wilkins has returned from a five weeks' trip to Europe.

**Commencements.**—Baltimore University School of Medicine graduated a class of 16, May 2. Rev. Harris E. Kirk was the orator of the occasion.——Maryland Medical College, Baltimore held its annual commencement exercises May 5. Dr. Harry C. Gross awarded diplomas to 91 graduates. Albert C. Tolson delivered the address of the evening.

### MASSACHUSETTS.

**Waltham Hospital Completed.**—The new contagious disease hospital, erected at a cost of $25,000 at Waltham, is now completed and ready to receive patients.

**State Association of City Physicians.**—City Physician Edwin P. Gleason, Brockton, has written to 32 city physicians throughout the state, suggesting the organization of a state association for the interchange of ideas and suggestions regarding problems of civic sanitation.

**Excessive Verdict Reduced.**—The verdict for $1,000 returned in favor of Louis Bromberg against Drs. Herbert B. Howard and Elisha Flagg, Boston, for an autopsy alleged to have been made on the body of the plaintiff's son, without the plaintiff's consent, has been reduced to $300.

**Personal.**—Dr. William A. Dunn, Boston, has become a member of the medical staff at the Vatican.——Dr. George L. West, Newton Center, has been appointed medical examiner for the seventh Middlesex district, vice Dr. Julian A. Mead, Watertown.——Dr. Charles A. Peabody, Worcester, who was sentenced to three years' imprisonment for embezzlement in 1902, has been pardoned.

**Consumptive Hospital Bill a Law.**—The Massachusetts legislature has passed a bill authorizing the establishment of a hospital for consumptives, to be built at an expense of $150,000, not far from Boston.——They have also authorized the city of Boston to borrow outside the debt limit in order to establish a relief station in East Boston, similar to the one which is so successful in Haymarket Square, and the city council has voted to proceed at once with its establishment.

**Find Farms Foul.**—After an eight weeks' tour of the dairy farms of Massachusetts, the State Board of Health found over 60 per cent. in such an insanitary condition as to require immediate improvement. Unless such changes are promptly made the farmers will be forbidden to sell their milk. This is a continuation of the work started two or three years ago by the Boston Board of Health to secure pure milk for the city. The inspectors have also detected 30 tuberculous cows, which is of importance, since just now the farmers are urging the abolition of the tuberculin test, which they claim is unnecessary.

### MISSOURI.

**Tuberculosis Sanatorium Bill Passed.**—The general assembly has passed a bill providing for a state sanatorium for incipient consumptives and has appropriated $50,000 for its establishment and maintenance.

**Public Comfort Houses.**—A movement is on foot in the St. Louis Medical Society to co-operate with the Civic Improvement League to establish houses for public comfort about the city, such as exist in European cities.

**Bringing Them In.**—The St. Louis Medical Society recently appointed a committee to canvass the medical profession of the city for the purpose of increasing the membership of the local body by urging all eligible members of the profession to join.

**Must Report Tuberculosis.**—An ordinance declaring consumption to be communicable and prescribing regulations to control the spread of the disease was passed, April 28, by the municipal assembly of St. Louis. This requires each case of tuberculosis to be reported to the Board of Health.

**Commencements.**—The graduating exercises of the Medical Department of St. Louis University were held May 8. Dean John M. Dodson of the University of Chicago delivered the commencement address.——Barnes University, St. Louis, on May 3, graduated a class of 123 in the medical department.

**Addition to Hospital.**—The building formerly occupied by the Missouri Medical College on Jefferson Avenue, St. Louis, has been remodelled and equipped throughout as an annex to the old Polyclinic Hospital, the two now constituting what will be known in the future as the Washington University Hospital.

**Do Not Want Advertisement.**—The Moberly Medical Society, at a recent meeting, passed a resolution requesting local newspapers to make no mention of physicians' names in connection with newspaper accounts of births, accidents, surgical operations, etc. A resolution was also adopted asking every member of the society to attend all society meetings and inviting the co-operation and membership of all physicians in Moberly.

**Annual Meeting.**—The annual meeting of the St. Louis Medical Library Association was held, April 26, when the following officers were elected: President, Dr. Norman B. Carson; vice-president, Dr. John H. Duncan; librarian, Dr. Frank J. Lutz; secretary, Dr. Walter B. Dorsett; treasurer, Dr. Paul Y. Tupper, and trustees: Drs. Edwin C. Burnett, Hugo Ehrenfest, Washington, E. Fischel, Robert M. Funkhouser, Joseph Grindon, and Harvey E. Mudd.

**Banquet to Medical Legislators.**—The St. Louis Medical Society of Missouri and the Medical Society of City Hospital Alumni, St. Louis, gave a complimentary banquet to the medical members of the forty-third general assembly of Missouri, in recognition of services to the public and profession in securing legislation for the establishment of a state sanatorium for persons having incipient tuberculosis, at Hôtel Jefferson, May 10. The guests of honor were the governor, the president of the senate and the speaker of the house; Senator Dr. Frank De Vilbiss, Spring Garden; Representatives Drs. William L. Gillmore, Winona, Christopher D. Kelly, Barry County, Abra C. Pettijohn, Brookfield, Irvine Phillips, Lead Mine; Horace D. Quigg, Blackwater, James Stewart, Warren County, Alonzo Tubbs, Gasconade County, and Goldburn H. Wilson, St. Louis; the Surgeon General of the United States Public Health and Marine Hospital Service; the presidents of the Missouri State Medical Association; Missouri Institute of Homeopathy and Eclectic Medical Society of Missouri; the editor of The Journal of the American Medical Association, and the president of the State Board of Health of Missouri.

### NEW YORK.

**Fair for Hospital.**—The fair for the benefit of Jamaica Hospital which closed April 28, netted $1,300 to the hospital organization.

**Buffalo Graduates.**—The fifty-ninth annual commencement exercises of the Medical Department of the University of Buffalo were held May 4, when a class of 37 was graduated. The address to the graduating class was given by Rev. Richard Earle Locke.

**Personal.**—Governor Higgins has appointed Dr. Eugene H. Porter, New York City, as the State Commissioner of Health to succeed Dr. Daniel Lewis.——Governor Higgins has re-appointed Dr. Stephen Smith, New York City, to the State Board of Charities.——Dr. George S. LaMoree, Highland, was thrown from his buggy, April 24, and sustained painful injuries.——Dr. John H. Pratt has been appointed health physician of *Manchester*.

**Buffalo Alumni Meet.**—The thirtieth annual meeting of the Alumni Association of the Medical Department University of Buffalo was held May 3 and 4. The entertainment provided included clinics in the various hospitals; a luncheon given by the resident to the non-resident alumni; a luncheon given by Drs. Matthew D. Mann, Roswell Park, Charles G. Stockton, Charles Cary. Irving M. Snow, Herbert W. Williams and De Lancey Rochester, to the association; a smoker given by the faculty, and the annual dinner at the Iroquois Hotel. The following officers were elected: Dr. Fridolin Thomas, Buffalo, president; Drs. William R. Campbell, Niagara Falls, Malin B. Shaw, Eden Center, Mary M. Huntley, Buffalo, George A. Himmelsbach, Buffalo, and Hiram P. Trull, Williamsville, vice-presidents; Dr. Herman K. DeGroat, Buffalo, treasurer, and Dr. Nelson G. Russell, Buffalo, secretary.

**Final Work of Legislature.**—The McMannis bill establishing a hospital in New York City for the treatment of habitual drunkards and persons addicted to the use of opiates, drugs or narcotics, passed the senate.——The Hackett bill authorizing the establishment of a new public hospital in New York City, to be located on the west side between Twentieth and Forty-second streets, has passed the assembly. The bill provides that the institution shall be under the control of the Commissioner of Public Charities. There is some objection to this, as it has been found that the hospitals of New York have been better managed by a special board of trustees. It is thought that the new hospital should be established under the same control as other city hospitals.——A bill has been passed increasing the pay of police surgeons in New York City from $3,000 to $3,500.——Two additional bills affecting the water supply have been passed; one of these, the Agnew bill, provides for the appointment by the governor of five citizens of the state to constitute the State Water Supply Commission; the other, known as the Mayor's bill, provides for the appointment of three commissioners to constitute a local water board for the City of New York. The bill defines the duties, regulates the salaries, etc. It is understood that these bills will be approved immediately and that plans will be submitted for the acquiring of additional sources of water supply for the City of New York at the earliest possible date.——The Hill bill abolishing the office of curator of the Medical Department of the University of Buffalo, and vesting his powers in the faculty of the institution, was passed by the assembly May 1.

### *New York City.*

**Impure Milk Dealers Sentenced.**—Five milk dealers were convicted in Court of Special Sessions of selling impure milk, The heaviest fine levied was $100.

**Personal.**—Dr. Frank A. McGuire was the guest of honor at the fourteenth annual banquet of the New York Celtic Medical Society, April 27, and was presented with a gold badge in the form of a harp.

**Many Would Go to Portland.**—Thus far 180 applications have been received for reservation on the special train from New York City for Portland, on which accommodation for only 125 was originally provided.

**A New Ambulance.**—The Health Department has acquired a thirty horse-power electric ambulance, geared to travel twenty-five miles an hour, at a cost of $4,000. It will be used exclusively for contagious diseases in the Borough of Queens, where long distances must frequently be traversed.

**Contagious Diseases.**—There were reported to the sanitary bureau for the week ended April 29, 356 cases of measles, with 16 deaths; 314 cases of tuberculosis, with 189 deaths; 294 cases of diphtheria. with 42 deaths; 212 cases of scarlet fever, with 12 deaths; 111 cases of cerebrospinal meningitis, with 104 deaths; 15 cases of typhoid fever, with 7 deaths; and 61 cases of varicella.

**A Ward for Meningitis.**—A pavilion for the treatment of cerebrospinal meningitis patients under the age of twelve has been set aside at Bellevue Hospital. There are now 45 cases suffering from this disease at Bellevue Hospital. This ward will relieve, in a measure, the overcrowding of the city hospitals, and will enable the investigating committee to study the disease to better advantage.

**Cerebrospinal Meningitis Commission.**—At the conclusion of the meeting of this commission May 5, it was announced that it had been concluded that the best treatment for the disease was fresh air. Sunlight should also be freely admitted to the sick room. It was also announced that no benefit had been derived from the injection of any serum or antitoxin. Further experiments, however, will be made along this line.

**Pneumonia Commission.**—After having worked steadily for nearly six months this commission held its first general session on May 4, when reports were received from the various committees. A large quantity of material has been collected and will be published in the form of monographs by the individual members of the commission. The work will be continued, and a more definite report will be made in a few months on the causes, methods of treatment and means of prevention of this disease.

## PENNSYLVANIA.

**Osteopathic Bill Vetoed.**—The governor's veto of the osteopath bill is discussed elsewhere in this issue.

**Hospital Examinations.**—An examination for two interneships in St. Vincent's Hospital, Erie, will be held in the hospital after June 10. All applications should be sent to Dr. J. H. Montgomery, Erie, or to Dr. C. M. Montgomery, Philadelphia.

**Personal.**—Dr. James W. Macfarlane has been re-elected secretary of the West Penn Hospital, Pittsburg.——Dr. Franklin J. Evans has been appointed inspecting physician of the Chester Board of Health.——Dr. Thomas M. Livingston has been re-elected president of the Columbia Board of Health.——Dr. George Hay, Johnstown, who was recently operated on for appendicitis, is making a rapid recovery.

**Hospital Notes.**—Andrew Carnegie has agreed to endow two private rooms in the Columbia Hospital, Wilkinsburg, at an expense of $16,000. They will be named in honor of Mrs. Carnegie and Miss Marguerite Carnegie.——Bloomsburg Hospital will henceforth be known as the Joseph Ratti Hospital in honor of its founder and donor.——The courts have decided that bequests of $10,000 each to the Washington Hospital and the Presbyterian Hospital, Allegheny, by the late Mary Gregg of Washington, are invalid because the bequests were made within thirty days of the death of the testator.

### *Philadelphia.*

**Visitors from Abroad.**—Dr. Gunnar Nystron, Upsala, Sweden, and Dr. Hall of London, England, visited the medical colleges and hospitals of the city during the first week of May.

**Members of American Therapeutic Society Entertained.**—Dr. John V. Shoemaker entertained at luncheon at his home on May 5 an assemblage of members of the American Therapeutic Society.

**Bequests.**—By the will of the late Mrs. Clement B. Newbold the Home of the Merciful Saviour for Crippled Children receives $5,000 and the maternity department of the University Hospital $10,000.

**Hospital Physicians Organize.**—At a meeting of the physicians of the Samaritan Hospital, held at the residence of Dr. Wilmer Krusen, May 6, a permanent society of the staff was effected, and the following officers were elected: President, Dr. Samuel Wolfe; vice-president, Dr. Henry C. Groff, and secretary, Dr. O. J. Arnold.

**Internes for St. Joseph.**—The following men were appointed resident internes in St. Joseph's Hospital, May 1: Dr. A. H. Harrigan, Columbia University; Dr. James G. Cullen, University of Pennsylvania, of Dunmore, Pa.; Dr. Thomas O'Brien, University of Pennsylvania, of Philadelphia; Dr. E. B. Starr, Jefferson Medical College, of Springfield, Ohio, and Dr. Rice R. Jackson, Jefferson Medical College, of Texas.

**Hospital Reports.**—During April 262 patients were admitted to the German Hospital; 255 were discharged cured and 186 remained; 4,200 patients were treated in the dispensaries and 1,429 prescriptions were issued.——The Charity Hospital treated 882 patients and compounded 785 prescriptions.——During 1904 the Pennsylvania Hospital treated a patient every twenty minutes, day and night. Altogether 44,138 patients were treated, and the ambulance made 1,565 calls.

**Health Report.**—The total number of deaths reported for the week ended May 6 reached 481, as compared with 552 for the previous week and 572 for the corresponding period of last year. The principal causes of death were as follows: Typhoid fever, 20; diphtheria, 8; consumption, 49; cancer, 22; apoplexy, 17; heart disease, 45; acute pulmonary disease, 74; enteritis, 23, and Bright's disease, 41. There were 342 cases of contagious disease reported, with 32 deaths, as compared with 380 cases and 24 deaths for the previous week. A slight decrease in typhoid fever is noted.

**Gift to Dr. Forbes.**—The students of the classes of 1905, 1906, 1907 and 1908 of Jefferson Medical College will, on commencement day, June 2, present to Dr. Forbes, the professor of anatomy, a life-size portrait of himself. The gift is a testimonial to Dr. Forbes for his indefatigable efforts toward legalizing dissection in this commonwealth, for it was by his efforts that this law was passed and the State Anatomical Board established. Dr. Forbes completed his twenty-sixth year as professor of anatomy in the college this year, while he has taught anatomy in this city for 49 years.

## SOUTH DAKOTA.

**Special Train to State Meeting.**—The twenty-fourth annual session of the South Dakota State Medical Association will be held at Deadwood, S. D., July 5 and 6. This is the first time that the meeting has been held west of the Missouri River, and the date makes it possible to go on to Portland in time for the American Medical Association session the next week, so that a very instructive and pleasant outing is made possible. Special through sleepers will leave Aberdeen on the morning of July 3, and will pass south through the eastern part of the state to Sioux City, Iowa, where a special train will be formed, to run over the C. and N. W. R. R. to Deadwood, arriving at 12:20 p. m. July 4. July 7 will be occupied in a trip up the Spearfish Canyon and in seeing the sights of the Black Hills, until 6 p. m., when the train will leave for Cheyenne and will complete the journey via the U. P. and Oregon Shortline, arriving at Portland at 5:25 p. m. Monday, July 10. Physicians from other states who desire to visit the wonderful Black Hills will be very welcome at the meeting, announces the secretary, Dr. Charles B. Mallery, Aberdeen, and can join the party at Sioux City. The fare, including the side trip to Deadwood is $50.65, the return routes are the same as given in The Journal, April 22, 1905.

## GENERAL.

**More Yellow Fever at Panama.**—Two natives died of yellow fever on the isthmus, April 28 and 29, and three employes of the commission were reported sick. Bad weather and scarcity of water make conditions abnormally bad. The new water supply will soon be in operation.

**Tuberculosis Association Meeting.**—A rate of one fare and a third on the certificate plan has been granted by many railroads for the first annual meeting of the National Association for the Study and Prevention of Tuberculosis, to be held at the New Willard Hotel, Washington, D. C., May 18 and 19, 1905.

**The Department of Sanitation at the Isthmus of Panama.**—The Isthmian Canal Commission, at its meeting held in Washington, May 3, 1905, approved the estimates which were submitted by Col. W. C. Gorgas, Medical Corps, U. S. A., chief sanitary officer on the isthmus, and which were favorably recommended by Commissioner Magoon in charge of government and sanitation. These estimates provided for the allotment of $656,444 for the fiscal year beginning July 1, 1905, for the payment of salaries and wages in the health department, including professional employes and skilled and unskilled labor, which is a net increase of $150,140 over the allotments for the preceding year, which increase is based on the proposition that the forces of the commission will be largely augmented by July 1. This allotment for the coming fiscal year does not include the cost of construction of necessary buildings and hospitals or for the purchase of medical supplies and other necessary equipments, but is merely for the payment of the professional corps and the large number of laborers engaged in work looking to the sanitation of the isthmus. As the expansion of force involves increase of duty and responsibility on the heads of the several offices and institutions included within the department of health, the commission authorized approximately a 15 per cent. increase in the salaries of the heads of the departments and fixed them as follows:

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| Chief sanitary officer | $10,000 |
| Director of hospitals | 8,000 |
| Chief quarantine officer | 7,000 |
| Superintendent of Ancon Hospital | 7,000 |
| Superintendent of Colon Hospital | 5,000 |
| Health officer of the Panama health office | 3,600 |
| Health officer of the Colon health office | 3,000 |
| Resident physicians of emergency hospitals along the line of the canal | 3,000 |
| Chief sanitary inspector | 3,600 |

The commission also authorized the immediate erection of an additional hospital building in Colon at the estimated cost of $40,000.

**The Osler Farewell Dinner.**—The dinner given to Dr. William Osler previous to his departure for England to assume the regius professorship of medicine in the University of Oxford, took place at the Waldorf-Astoria, in New York City, May 2. There were present over 500 physicians from various parts of the United States and Canada, the larger number naturally coming from the large cities on the Atlantic seaboard. Dr. James Tyson of Philadelphia presided. In the middle of the dinner Mrs. Osler and other members of the Osler family took seats in the center of the first balcony facing the guest table. Their appearance was signaled by general applause, the diners rising and waving their napkins. By the time the tables were cleared and the cigars lit the two balconies surrounding the dining hall were filled with visitors, mostly ladies, so that the speakers faced an attractive gathering. The first speaker was Dr. F. J. Shepherd of Montreal, who spoke about Dr. Osler's career in Montreal as "Student and Teacher" in the early seventies. He was followed by Dr. J. C. Wilson of Philadelphia, who spoke about Dr. Osler in Philadelphia and his work there as "Teacher and Clinician." Dr. Wm. H. Welch of the Johns Hopkins University then spoke of Dr. Osler's work in Baltimore as "Teacher and Consultant." Dr. Welch referred to the difficulty of forming a correct estimate of the lasting significance of work of contemporaries; he believed, however, that Osler's efforts to place the teaching of clinical medicine in this country on a sound basis would prove to have lasting influence. "Our Regius Prof.," to the tune of "America," was sung by the whole company. The venerable Dr. A. Jacobi spoke of Dr. Osler as "Author and Physician." Then Dr. S. Weir Mitchell presented Dr. Osler with a copy of an English translation of Cicero's "de Senectute," printed in Philadelphia by Benjamin Franklin. Dr. Mitchell's remarks were most happy. He accused Cicero of being an "anticipatory plagiarist" because he wrote that it behooves a man to know when it is best for him to die. Dr. Osler's response was brief, but forceful and largely in the nature of expressions of thankfulness to colleagues, students, and the profession at large for all he had received at their hands. He took occasion to emphasize very particularly the need in this country to abolish our many-headed hospital staffs and to establish everywhere good services, medical and surgical, under the permanent charge of individual physicians and surgeons, with adequate assistants and laboratories. Only by so doing can America hope to contribute its share to the solution of the many problems now pressing in clinical medicine.

## CANADA.

**Personal.**—Dr. W. D. Brydone-Jack, Vancouver, is visiting New York hospitals.——Dr. Glen Campbell, Vancouver, has returned from Germany.——Dr. W. H. B. Aikins, Toronto, has returned from Vienna.——Dr. Perry Goldsmith, Belleville, Ont., has gone to Vienna.

**Toronto Clinical Society.**—At the last meeting of the season, May 3, this society elected the following officers: President, Dr. Adam H. Wright; vice-president, Dr. H. B. Anderson; recording secretary, Dr. George Elliott; corresponding secretary, Dr. W. J. McCollum; treasurer, Dr. Geoffrey Boyd; executive committee, Drs. E. E. King, W. B. Thistle, D. J. Gibb-Wishart, R. I. Dwyer and H. J. Hamilton. The annual banquet was held at the Albany Club May 6.

**Western Hospital, Montreal.**—Work will be begun, June 1, on a fine new wing to the Montreal General Hospital, which will cost $200,000. The following medical board has been appointed to co-operate with the architects: Dr. J. B. McConnell, Dr. James Perrigo and Dr. George Fisk. The new wing, when completed, will provide for 100 extra beds for this hospital. The addition is necessitated owing to the constant crowded condition of the institution, as many as ten patients being often refused admittance in a day.

## FOREIGN.

**French Congress of Climatology and Urban Hygiene.**—The second French congress was held at Arcachon and Pau, April 24 to 29, with a large attendance. Part of the sessions were held at one place and part at the other, a special train conveying the members, and also giving them a day or so at Biarritz. Dr. H. Barbier delivered the report on the seaside sanatoria for children and adults in France, and Arnozan demonstrated the model disinfecting and drainage service at Arcachon.

**Fifth International Congress of Psychology at Rome.**—There were four sections in this congress which convened at Rome, April 26 to 30. The sections were as follows: Experimental psychology; introspective psychology; pathologic psychology; and criminal, pedagogic, and social psychology. Professor Sergi presided over the general congress, Lombroso had charge of the fourth section and Tano, Ardigo and Morselli of the others.

**Epidemic Cerebrospinal Meningitis in Austria and Germany.**—The Austrian government has sent three physicians, including A. Ghon, Weichselbaum's assistant, to study the epidemic of meningitis that is spreading into the Austrian territory from Prussian Silesia. In February and March 437 cases and 188 deaths were reported in Galicia. Several cases have appeared in Berlin, and Westenhoeffer has been sent to Silesia to study the disease. Two cases had developed in Vienna by April 23.

**Homage to Beco.**—Dr. Beco is one of the most public-spirited and energetic physicians of Belgium. He has long served as secretary general of the public health department. About sixty physicians gathered to do him honor on a recent anniversary, and asked his "personal co-operation" in the making of a marble portrait bust to be installed in a prominent place. Beco's name is always associated with every forward stride of the organized profession in Belgium, and with medical progress in general.

**Hygiene of Laundries in France.**—The French authorities have recently regulated the conveyance and sorting of soiled linen in the laundries. It has been found that 25 per cent. of the laundry employes in France are tuberculous, and measures have been taken to reduce the danger of contagion from soiled linen. It must be carried in closed bags or boxes and, before it is sorted, it must be disinfected or boiled in an alkaline fluid, or at least, well moistened to prevent dissemination of dust as it is sorted. The bags and linen from hospitals, etc., must be disinfected. All who handle the soiled linen must be supplied by the proprietor with overalls or aprons, and there must be no lunching in the room devoted to this purpose. The soiled linen before disinfection or moistening must never be taken into the ironing room. An exchange remarks that these measures should be supplemented by hygiene in the home, while the soiled linen is waiting for the laundryman. Instead of being kept in a dark, covered, unventilated basket or bag, it commends Cazalis' plan of having a place for the soiled linen on the outside of the wall of the house, built from the landing at the head of the stairs. the door opening into the house.

**The International Roentgen Congress and Celebration.**—The congress opened, April 30, in a blaze of enthusiasm and closed May 3, a most remarkable event, as it celebrated only the tenth anniversary of the discovery of the Roentgen rays. Professor Roentgen, himself, was too modest to face the ovation all wished to offer him, and stayed at home in Würzburg, merely telegraphing his appreciation of the honor. From every country tributes to the therapeutic efficacy and the value in diagnosis of the rays were presented, Lassar stating that he had had only 3 failures out of the hundreds of cases of cancer he had submitted to the rays. (His experiences to date were summarized in THE JOURNAL on page 79). He recognizes the limitations of the treatment, stating that one-fifth of an inch is the extent of its effectual therapeutic penetrating power. Similarly favorable results were reported from Lisbon by Comas. Unger of Berlin and Sjoegren of Stockholm knew of no case of cure of mammary cancer, but Wohlgemuth has witnessed the vanishing of a cancer of the breast in a woman of 75 after seventy-two exposures, three a week. Our German exchanges have all blossomed out with articles on roentgology, delivered at the congress, describing its importance for surgery, for internal medicine, etc. Rumpf defined the present status of Roentgen treatment of leukemia as promising marked improvement, but not a permanent cure. No instance of the latter is yet known. The benefit to the general health and the blood findings are explained by Heineke's and Perthes' researches on the deleterious action of the Roentgen rays on lymphoid tissue and on ascaris eggs. Fittig has successfully treated lymphoma of the neck and symmetrical parotitis. Rumpf mentioned in speaking of the differential value of the rays that he has recently had a case in which a splinter of bone had lodged in the left bronchus and caused a small inoperable abscess. Two weeks in the abdominal decubitus with the head low was followed by the spontaneous evacuation of the abscess, and with the pus the piece of bone. Among the innumerable technical improvements exhibited was an alarm clock contrivance that rang a bell when the rays reached the burning point. This was presented by Gocht of Halle. The address made by Leonard of Philadelphia, president of the American Roentgen Society, will be reviewed elsewhere.

## LONDON LETTER.

### The Care of the Consumptive Poor of London.

The difficulty of providing sanatorium treatment for the consumptive poor of London has been the subject of much consideration and discussion. A deputation organized by the Incorporated Society of Medical Officers of Health has urged the Metropolitan Asylums Board (the authority which controls the fever hospitals of the metropolis) to provide sanatoriums. In the deputation were represented the National Association for the Prevention of Consumption and Other Forms of Tuberculosis, the Royal College of Surgeons, the Royal Sanitary Institute, the National Health Society, the Hospital Saturday Fund Association, the Hospital Sunday Fund Association, and the Charity Organization Society. It was pointed out that over 7,000 persons (the large majority in the prime of life) die every year in London from pulmonary phthisis. This loss, as well as a large amount of illness from the same disease, might be prevented were hospitals provided. The present provision of hospitals is totally inadequate and it is impossible to treat the poor in their own homes or in poor law infirmaries with any reasonable hope of cure. Sir William Broadbent, who spoke as the representative of the National Association for the Prevention of Consumption, said that there were over 40,000 persons suffering from consumption in London, of whom over 7,000 were in the earlier stages and could be successfully dealt with by sanatorium treatment. He hoped the board would not be satisfied with simply getting itself constituted the sanatorium authority for London, but would become the authority for dealing with tuberculosis as a whole so that, step by step, this great question might be dealt with from both the preventive and the curative aspects. The initial expense need not be heavy. There is no need for palatial buildings. Sanatoriums may be started with a number of light buildings, bungalows and huts. The children suffering from surgical tuberculosis should not be forgotten. In London thousands of children are being made cripples by tuberculosis of the spine and joints. No class of disease yields more readily to treatment than this.

### New President of the Royal College of Physicians.

At the election of the Royal College of Physicians, held to select a successor to Sir William Church, who had held the office of president for the unusually long period of 6 years, the first ballot resulted as follows: Sir Richard Douglas Powell, 51 votes; Sir William Broadbent, 50; Dr. Pye Smith, 27; scattering, 7. The second ballot resulted in the election of Sir Douglas Powell, who received 74 votes, against 59 for Sir William Broadbent. The new president was physician in ordinary to the late queen.

### Cerebrospinal Fever in England.

In view of the outbreak of cerebrospinal fever in New York, the occurrence of some sporadic cases in England is of interest. A man, aged 36. has been admitted into one of the London hospitals under the care of Dr. Ferrier. The usual symptoms of meningitis developed and in the fluid obtained by lumbar puncture were found diplococci which, on cultivation, proved to be those of Weichselbaum. Subsequently a fatal case occurred at Liverpool, which has attracted much attention in the lay press for the following reasons: The patient was involved in a quarrel a month before his death, and a suggestion was raised that his illness was due to injury. Accordingly a coroner's inquest was held. Though the *Diplococcus intracellularis* was found in the cerebrospinal fluid, the doctor who had attended the patient previously to his admission to the hospital maintained that the cause of death was abscess of the brain. However, the necropsy negatived this, for pus was nowhere found at a distance from the meninges.

### Prizes of the Royal College of Surgeons.

The Jacksonian prize essay for 1904 has been awarded to Mr. H. J. Patterson for his essay on "The Diagnosis and Treatment of Such Affections of the Stomach as Are Amenable to Direct Surgical Interference." The following subject has been selected as the subject for the Jacksonian prize for 1906: "The Diagnosis and Treatment of Those Diseases and Morbid Growths of Vertebral Column and Spinal Cord and Canal Which Are Amenable to Surgical Operations."

### Another Victory Over Malaria.

More than a year ago Dr. Ronald Ross reported the remarkable success against malaria achieved by the Suez Canal Company, an account of which was published in THE JOURNAL. He now reports an equally brilliant victory obtained in the British possessions at Klang and Port Swettenham, in the Malay States. Full details have been given by Dr. Malcolm Watson, district surgeon, in the *Journal of Tropical Medicine*. Klang is a town with a population of 3 576 in 1901. Port Swettenham is 5 miles distant, on the mouth of the Klang River, and has a population of about 700, mostly official. In the year 1900 both places were hotbeds of malaria. Dr. Watson doubts whether more than 3 out of 293 houses in Klang escaped infection during the last 4 months of that year. Port Swettenham was opened in September, 1902, and within 2 months 41 out of 49 government quarters became infected, while 118 out of 196 government servants were attacked before the end of the year. An energetic system of drainage similar to that which proved so effectual in Havana and Ismalia was instituted. Swamps were filled up, jungle and undergrowth cleared, and a contour drain was constructed round the declivities in order to intercept incoming springs. The cost up to date was $26,000 (Mexican) for Klang and $59,000 (Mexican) for Port Swettenham, this comparatively large expenditure being sanctioned in order that the work of reclamation should be as permanent as possible and should provide good building sites in both towns. The admissions to hospital for malaria fell considerably. Only 2 out of 260 children, or 0.77 per cent., residing in Klang and Port Swettenham were found to contain the malarial parasite in November and December last, as against 91 out of 298 residing in the surrounding district, or 34.8 per cent. The amount of sickness in officers in the two towns showed a remarkable fall. The following are the figures: Sick certificates—1901. 236; 1902, 40; 1903, 23; 1904, 14. Days of leave—1901, 1,026; 1902. 198; 1903. 73: 1904. 71. Further, no officer has suffered since July, 1904, that is, during the worst malarial season. Perhaps Dr. Watson's most convincing statement, which he says he can not help recording with less satisfaction, is that his fees from private patients suffering from malaria have fallen to zero. He sums up thus: "The two areas which were so malarious in 1901 are now practically, if not absolutely, free from the disease, and the district surrounding them remains much as it was." Ninety-nine per cent. of the breeding places of anopheles have been removed. There is no evidence of any considerable emigration of anopheles into the drained areas from the extensive breeding grounds outside—a most important fact, for the possibility of such emigration has always been an excuse for neglecting anti-mosquito work.

### Lord Lister's Birthday.

Lord Lister, famous in the earliest days of antiseptic surgery, has just celebrated his seventy-eighth birthday. His admirers throughout the world will be delighted to hear that he is still in good health.

## *Correspondence*

### Abuses in Medical Literature.

SAN ANTONIO, TEXAS, 1905.

*To the Editor:*—I believe that the ponderous systems of medical literature are indefensible on economic and on moral grounds. Our literature, in its present bulk, is accessible to the student, but, in two respects at least, it is wholly inadequate. The most brilliantly endowed and acquisitive mind can hardly grasp, in all its ramifications, the essential literature of a single department of medicine, and yet some general knowledge of all departments is a necessary prerequisite to the intelligent practice of any of its specialties. When every branch of medicine has a half dozen or more systems devoted to it, is it not a gross imposition on the reader's mind, a confusion of his memory and a waste of his time? In the desire to be just, rather than critical, in my search for motives, I have been forced to indulge hypotheses, and to ask myself if these repetitious compilations are honestly put together, and diluted through countless pages, to suit the assumed lower intelligence of the reader. It may be presumed that many collaborations, not a few of them displaying in their pages the blurred literary images of men of deserved eminence, grow out of the notion that the reader's respect for authority is weighed by the bulk and heft of the volume. Evidence might be adduced to support the graver charge, that it is not the first aim of expansive authorship to present concisely, to the more or less credulous and dependent reader, new and important knowledge, or old knowledge in new and improved form, but elaborately to display itself as high consultant authority. The desire for a wider clientele is peculiarly seductive, and there is a certain objectiveness about increasing fees which seems to blunt the moral perceptions and to confuse the most virtuous intentions. Even writers of conspicuous ability and of unimpeachable moral character give the weight and influence of their commanding names to many of these successful impositions on the patience of the profession.

Recently I was permitted to read the manuscript of an exceptionally able and conscientious writer, under contract to contribute 15,000 words to a certain new system. He assured me, with charming innocence of any intentional complicity in wrong doing, that his paper was a compilation, that it added not an iota to the knowledge of the subjects, and that he could have completed his part of the work in 2,500 words. I am an advocate of the one book for the one man, and I would qualify the man and hold him to certain rigid conditions. He should not be permitted to write, with nothing but the itch for inspiration, air egotistic puerilities or display the turbulent impulses of covert ambition, in too much space. He should not confuse his subject and the reader by senseless repetitions forsake the sufficient pamphlet for the degenerated book, or needlessly abstract from its original accessible source knowledge already familiar to the reader.

It is a matter of common knowledge that medical literature is luxuriant in its growth, abundant in its knowledge and brilliant in its achievements; but it does not courageously adhere to its own intrinsic ordinances, and its ethics are too much under the influence of alien and prohibitive influences. It flaunts its wretched superfluities in the face of knowledge, and its benefits are administered too seclusively to the writer and exclusively to the reader.

Without, however, seeking to pry too curiously into the character of personal responsibility to science, impartial evidence seems to confirm the statement that each member of the profession has contributed, in one way or the other, to the general confusion and misbehavior of medical literature. We have not recognized and sustained with the right intelligence or moral courage its superior claims to impersonal consideration, nor have we opposed, as individual units of resistance. the impositions that have weakened its vitality and compromised its character. By what initiative and with what force and persuasiveness shall we undertake the re-establishment of literary authority? It is easier to ask this question than to answer it. Nevertheless, it may be suggested, as a beginning. that it is possible for each of us to discourage in himself, and to oppose in others, the suave and fluent insinuations of self-interests. It is possible to refuse to sanction collaborations of dubious merit, even when we discover held over them, in editorial benediction, the palms of some acknowledged high priest of medical thought. An aroused general sentiment, expressing itself along these lines, would separate, in time, the wheat from the chaff, attach responsibility where it belongs. and relegate to the background the conscious and willing disturbers of literature's more honest and capable efforts to meet the requirements of scientific progress.

When the general demand for truly expressive literature is raised high enough, in quality and morals, both writer and publisher will be forced to adapt themselves to the higher claims of literary propriety. This disposition apparently settles the question of mischievous authorship, for it may be argued that without readers the publisher must fail, as without a publisher the writer must fail. It is certainly true that the right demand will produce the right book, for it is as obviously a fact that the cultivated intelligence of the reader has its source and authority in books as it is that the book has its source and authority in the writer.

JAMES HALL BELL, M.D.

### Clay Mixture Poultices.

UNIVERSITY OF MICHIGAN,
DEPT. OF MEDICINE AND SURGERY.

ANN ARBOR, MICH, May 4, 1905.

*To the Editor:*—Certain medical journals are publishing a letter from the Denver Chemical Company criticising Dr. A. H. Roth's article on clay mixture poultices (THE JOURNAL, April 15. p. 1185), and criticising THE JOURNAL for publishing it. The letter contains several erroneous statements and as I had something to do with the article, as I shall show below, I think it only fair to Dr. Roth and to THE JOURNAL to give the facts.

The gist of the letter can be condensed into the following statements, viz.:

1. That the manufacturers of the substance formerly carried an advertisement in The Journal of the American Medical Association.
2. That this advertisement was withdrawn.
3. That the manager of The Journal, influenced by this loss of the advertisement, sent an abstract of Dr. Roth's article to medical journals.
4. That the article failed to specify the name of the substance, though quoting from its literature.
5. That the firm expect their substance to be a topic of medical discussion.
6. That The Journal would have done better had it published an article by a "man of years and clinical experience" instead of one from a "youth."
7. That the conclusions of Dr. Roth are at variance with the clinical findings of 90 per cent. of the active practitioners of this country.
8. Finally, the letter requests that if the medical journal addressed publishes the abstract it will also publish the letter under consideration immediately following, so that readers may be aware of the circumstances surrounding the publication of the article.

1, 2 and 3: The Journal had nothing to do with the conception of the article and, so far as I can learn, nobody connected with The Journal knew anything about the article until the typewriten copy was sent to it. The full page advertisement was in The Journal when the experiments were begun. I understand that The Journal makes it a practice each week to send to those journals which have requested it an advance sheet containing abstracts of the original articles. Naturally an abstract of Dr. Roth's article was included among these abstracts.

4. Dr. Roth did not specify the particular brand of clay poultice used because he was concerned not so much with the species as with the general question. As he pointed out, different brands of similar preparations are on the market. I have even heard that such a preparation is to be mentioned in the United States Pharmacopeia. Simply because we happened to have several samples of one particular brand this was used in the experiments. Dr. Roth quoted from the literature of the makers for very natural reasons, and quoted not in order to plagiarize but to explain the reason for some of the points brought out in the article.

5. The statement that the makers expect the substance to be a topic of medical discussion can hardly be reconciled with the letter.

6. As regards Dr. Roth's age and clinical experience, I hardly think any defense is necessary. He probably is quite as old and has quite as much experience as many of those who get favorable clinical results. Dr. Roth's experiments speak for themselves; if his observations or conclusions are faulty that can easily be shown.

As regards No. 7, it may be that Dr. Roth's results are at variance with the findings of 90 per cent. of the active practitioners of this country. I have no means of contradicting this statement, but the following seems to me to be of interest: Dr. Roth read his article before a large medical society. I think it is safe to say that there were 150 men present. The general trend of the discussion was adverse to the use of such substances. One physician warmly objected to the reading of such a paper on the ground of impropriety, because, he said, no reputable physician would use such material.

The article was instigated by me. I suggested the experiments to Dr. Roth in the beginning of 1904. Before that I had frequently discussed the use of clay poultices in clinics and before medical societies, when the question of the use of such substances was brought up. Dr. Roth (then Mr. Roth) and Mr. Munson began the experiments in my clinic on Feb. 4, 1904, and carried on a number of clinical observations in the next two or three months. Dr. Roth then finished the work in the fall of 1904, and it was ready for publication early in 1905. It was then announced on the program of a district medical society, and at the meeting was read and discussed. The editor of a medical journal published by a drug house asked the privilege of publishing the article. I told Dr. Roth that the article ought to go into a journal free from commercial affiliations and advised him to send it to The Journal of the American Medical Asssociation.

Dr. Roth has received a number of letters from men of standing in the profession congratulating him on the work and asserting a disbelief in the usefulness of such substances. He has not received any adverse criticism in this way.

8. I can not imagine that an editor of a medical journal would be influenced by the letter of the company; but the mere fact that such a letter was sent out puts in rather an unpleasant light the estimate that the writers have of the independence of editors. It is well known that many articles are written at the instigation of manufacturing firms. One can hardly object to this, but an effort to prevent the publication of adverse criticism strikes me as a very undesirable condition in medical journalism. George Dock.

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### The Pennsylvania Osteopath Bill.

Philadelphia, May 4, 1905.

*To the Editor.* The governor of Pennsylvania has just vetoed the osteopathic bill, which passed both houses of the legislature, by methods which perhaps had better remain unnoticed. As the effort of these pretenders has been made in several states, a comparison of the bills submitted discovers one fact, which I believe it would be well to make plain through the columns of The Journal of the American Medical Association.

This point is best discovered and demonstrated by a quotation from Senate Bill No. 311 of Illinois, and, parallel therewith, from Bill No. 115, file of the Senate of Pennsylvania. Each of these bills, every physician should recognize, apparently provides for an examination for licensure to practice osteopathy on proving, before a proposed board of examiners, that the candidate is possessed of a standard of qualification approximating that of the medical laws of the highest standard as operative in a few of the states.

The common point, to which attention should be directed, is that a provision, more or less vaguely worded, is incorporated in these acts, which deprives the proposed law of the very strength and protection to the community, which it apparently bears on its face, because it imparts to the proposed board the right to dispense with examinations, and to issue licenses to practice.

In Section 4, of the Illinois bill, it is provided, that "he or she files with the board a certificate of the Illinois Osteopathic Association, a corporation duly organized and chartered under the laws of the state of Illinois, setting forth under seal attested by the president and secretary of the association that the person named in the certificate is a graduate of a reputable college of osteopathy; that he or she is of good moral character and that he or she is in good standing in his or her profession; that such applicants *shall* (mandatory), on the payment of five dollars ($5.00) receive an osteopathic physician's certificate *from the board without an examination.*" (Italics mine.)

The last three words unfold the plot.

Now, a parallel consideration of a similar provision in the Pennsylvania bill: In Section 2, it is provided that "A majority of the members of the whole board *shall* (mandatory on them) issue certificates of qualification (at this point it is not stated whether the qualification refers to the possession of credentials admitting to examination for licensure or qualification for practicing) to all applicants having a diploma from a legalized *reputable* recognized and regularly incorporated college of osteopathy in good standing as such *at the time it was issued.*" (Italics mine.)

In other words, this forces the board to recognize the diplomas of all the colleges of osteopathy, which the board considers to have been in good standing. It would thereby perpetuate the imperfections of these institutions, from the time of their origin.

"Said certificate shall be signed by the president and secretary of said board and attested by its seal (now for the point), and *shall be conclusive of the right of the lawful holder thereof to practice osteopathy in the state*" (Italics mine.)

A more flagrant attempt to pass off on a commonwealth an apparently protecting law, requiring qualification for those who attempt and profess to be able to treat all diseases by manipulation, could not well be conceived The provisions quoted absolutely emasculate both laws, and perpetuate the evil by legalizing a body of men, a majority of whom would be empowered to exercise such far reaching and weighty responsibilities, as licensing such a class of so called practitioners

I hope you will take this matter up at this juncture, as states like Texas, Missouri, New Jersey, New York and Illinois are keenly sensitive to this question, and in a state of mind to be thoroughly educated in this subject.

HENRY BEATES, JR

### Book on Immunity.

MARION, OHIO, May 6, 1905

*To the Editor*. There has been appearing in THE JOURNAL for some time a series of articles on the subject of immunity. The articles are of a splendid character, and it has occurred to me that it would be a good idea to publish them in book form, making them more convenient for reference I believe that the above voices the sentiment of hundreds of readers of THE JOURNAL, and I think that many other readers of THE JOURNAL and of other medical magazines would be glad to avail themselves of so valuable a publication Will they be published in book form? A MELVILLE CRANE

[EDITOR'S NOTE: The above and many similar letters influence us to announce that the series will be published in book form, bound in cloth, at a probable price of about $1 00 ]

### Technic in Agglutination Tests.

MONTREAL, MAY 4, 1905

*To the Editor* In a letter just received Dr. F F. Wesbrook points out to me that I have credited him in my paper on agglutination (THE JOURNAL, April 22, 1905, p. 1261) with *devising* a method for making accurate dilutions from dried blood in agglutination tests, whereas the method was *suggested* by him while the originality and perfecting of the *technic* belongs to Dr Wilson I should be very pleased if you would make this correction in your columns OSCAR KLOTZ

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# Association News

### List of Those Who Will Go to Portland.

The "Portland Number" of THE JOURNAL, June 3, which will be the 1905 issue of the annual illustrated exposition of the annual session and the meeting place, will contain a list of all the special trains to Portland from various cities and a list of all physicians who have made reservations thereon, as far as this data is furnished by those in charge Attention is here called to this proposal Those in charge of trains are asked to have all such lists in this office Monday, May 22 Additions received up to May 25 will be used if the Portland write up has not gone to press

### Stopovers Allowed at St. Paul and West.

In addition to the stopovers that are allowed at Denver, etc and points west thereof, as described in THE JOURNAL, April 22, p 1300, we are informed by Mr C. A Mathews, general agent of the Northern Pacific Railway, stopovers will be allowed at St Paul, Minneapolis and points west thereof We repeat the advice that physicians purchasing tickets learn the exact conditions governing stopovers

### Company Wanted to Portland, Alaska and Yellowstone

AKRON, OHIO, May 6, 1905

*To the Editor* I wish to go to the session at Portland via the Canadian Pacific Railway, to join the excursion to Alaska, and to return via Yellowstone Park, but I do not wish to start on so long a journey alone It occurs to me that there are others planning the same route. Will you be so kind as to publish this, that we may arrange to travel together? J. G. GRANT.

## NEW MEMBERS.

New members for the month of April:

ALABAMA

Barclay, Jno W., Birmingham.
Holloway, Wm. A, Lauderdale
Foshie, Mason, Brewton
Roe L W, Mobile

ARKANSAS

Dake, Charles, Hot Springs
Dike, Frank Borland, Hot Springs
Dorr, Robinson C, Batesville
McKnight, J F, Walnut Hill.
Tarver, B F, Star City.
Walker, Henry Owen, Newport.

CALIFORNIA

Abbott, Geo Knapp, Glendale
American, S, San Francisco
Barrett, G. M, San Francisco
Baylis, John N, San Bernardino
Black, Stanley P, Pasadena
Card, Egerton F, San Francisco
Fly, Edw. M, National City
Hastreiter, Rolland Frederick, Los Angeles
Knowles, Cal W., San Francisco
McConnell, E G, San Francisco
Osmun, Wm F H, San Francisco
O Bannon, R W, Hollister.
Preston, Walton, San Francisco
Pressley, James Fowler, San Francisco
Perrault, E L, San Francisco
Robertson, H M, Riverside
Sherk, Henry Howard, Pasadena
Sartori, Henry J, San Francisco
Vaux, Exeter P., Santa Cruz
Vassault, T E, San Francisco
Voorhies, Alfred Hunter, San Francisco
Whitney, James Dorr, San Francisco
Williams T M, Palo Alto
Watts, Herbert C, Pinole

COLORADO

Darnall, Rolland F, Pueblo
Engzelius, A. E, Denver
King, W. W, Cripple Creek
Monahan, D G, Erie
Oettinger, Bernard, Denver.
Powell, Cuthbert, Denver
Senger, William, Pueblo
Stough, Charles F, Colorado Springs
Walker, Chas E, Denver.

FLORIDA.

Cox, J H, New Smyrna

GEORGIA.

Chason, Gordon, Bainbridge
Saliba, M M, Savannah

HAWAIIAN TERRITORY

Sawyer, Frank Everett, Honolulu

ILLINOIS

Brown, Richard H, Chicago
Berry, J C, Chicago
Brumback, A H, Chicago
Brower, D R, Jr, Chicago
Campbell, J F, Chicago
Callaway, W L Chicago
Cook, A L, Mason City
Clark, John Sheldon, Freeport
Davis, Charles J, Deerfield
Davis, H I, Chicago
Fast, Clarence W, Chicago
Flint Helen C, Chicago
Guertin J A, Beaverville
Going, Z H, Chicago
Good R H, Chicago
Hemala Richard, Onarga
Heath, Clarence W, Chicago
Hager, S M, Chicago
Hood J J, Chicago
Hagey, H H, Chicago
Howell, H L, Bloomington
Hughes G W, Armstrong
Kraft, J C, Chicago
Miner, Elizabeth R Macomb
McConnell, G G, Chicago
McClare, A W, Chicago
Newell, Mary B, Onarga
Newell, A J, Onarga
Olney Thomas A, Chicago
Oswald J W, Chicago
O'Brien G G So Chicago
Peairs Geo M, Joliet
Phillips F A, Chicago
Perekhan J S, Chicago
Parker, R. M, Chicago
Rice, E Perry, Chicago
Steen, Earl R, Joliet
Seidel, Albert W, Chicago
Solliday, Monroe H, Owaneco
Wells, William H, Chicago

INDIANA.

DuBois, F, Liberty.
Flynn, E W, Jeffersonville
Hardesty, J. C, New Castle
Mottier, Guilford A, Richmond
Runcie, Geo U, Poseyville
Smith, Geo H, Knightstown
Sugg, Henry H, Mt. Vernon.
Tilford, A S, Martinsville

INDIAN TERRITORY

Hardy, Walter, Ardmore

IOWA.

Carpenter, G. P., Cedar Rapids
Clark, Margaret V, Waterloo
Graham, D E, Bradgate
Goodale, L H, Nashua
Ghrist, Jennie G, Ames
Jones, N. Jasper, Shelby.
Janss, Henry, Marshalltown
Kime, J. W, Fort Dodge
Melott, E H, Ogden
Rice, N J., Council Bluffs
Robb, Winifred A. Yelton, Hiteman
Robb, Robert, Hiteman
Rust, David, Whiting
Schlag, R A, Monroe
Thompson, O P, Shell Rock
Van Ausdall, G M, New London
Warren, Alexis M, Sioux City
Wyatt, W. W, Kamrar
Williams, Edw. B, Montezuma

KANSAS

McGuire, Clarence A, Topeka
Maxson, J C, Goff
Nichols, Roscoe Townley, Liberal
Neptune John W, Salina
Spain, Clifford R, Jewell
Sippy, John J, Belle Plaine

KENTUCKY.

Cecil, J G, Louisville
Griffin, Silas, Henderson
Harvey, Charles W, Louisville
Newman, Howard D, Drakesboro
Percefull R C J, Yost
Stevens, W F, LaCenter

LOUISIANA

Kittredge, W. E, Napoleonville

MAINE

Bayard Clayton H, Orono
Bell, Charles W, Strong
Wheet, Fred C, Rumford Falls

MARYLAND

Edmunds, Page, Baltimore

MASSACHUSETTS

Baff, Max, Worcester.
Burger, G L Hagen, Boston
Brown, Melvin J, New Bedford
Bruce, F C, Easthampton
Cummings, Michael A, Fall River
DeNormandie, R I, Boston
Friedman, L V, Boston
Jackson, A W, Milford
Keith, Halbert Lynn, Milford
Lucksinger, Harry W, Husatonia
Palmer, L M, So Framington
Smith, Wm Henry, Boston
Thompson, F H, Fitchburg

MEXICO

Turpin, T J, Monterey

MICHIGAN

Canfield, R B, Ann Arbor
Clifford, R A, Ypsilanti
Hayward E H, Detroit
Morris, Roger S, Ann Arbor
Seymour Wm J, Detroit
Van Baalen, M R, Detroit
Ver Meulen, John, McBain

MINNESOTA

Bishop C Wesley, Minneapolis
Beckman, E H, Minneapolis

Budd, J. Danly, Two Harbors.
Desmond, Michael A., Eagle Bend.
Higgins, J. H., Rockford.
Loberg, Adolph E., Minneapolis.
Osborn, Lida, Mankato.
Pine, Alcinda A., St. Paul.
Shaleen, Arthur W., Hallock.
Stemsrud, A. A., Dawson.

### MISSISSIPPI.

Castle, Sara Allen, Meridian.

### MISSOURI.

Allen, T. C., Bernie.
Gilmore, E. E., Adrian.
Rea, Robert W., Plattsburg.
Shutt, C. H., St. Louis.
Sturgis, Jno., Perrin.

### MONTANA.

Schapps, Jno. C., Butte.

### NEBRASKA.

Barnes, Chester D., Tecumseh.
Boylan, J. H., Eddyville.
Cook, E. W., Plattsmouth.
Kaspar, Jos. Francis, Prague.
McCoy, Hiram F., Benson.
McCrea, Edw. Lee, Table Rock.
Sample, Jos. Richard, Hastings.
Sanders, S. F., Holdrege.
Wertman, Harry J., Milford.

### NEVADA.

Mooser, Chas. Edw., Reno.

### NEW HAMPSHIRE.

Dougherty, Thos. J., Somersworth.
Eastman, Oliver D., Woodsville.

### NEW JERSEY.

Ranson, Briscoe B., Jr., Maplewood.

### NEW MEXICO.

Swope, S. D., Deming.
Wylder, M. K., Albuquerque.

### NEW YORK.

Bermingham, F. H., Brooklyn.
Cook, F. B., New York City.
Cohn, Felix, New York City.
Eversfield, F. J., New York City.
Francis, Lee Mastin, Buffalo.
Griffin, John M., Warrensburg.
Gould, J. P., New York City.
Horn, John, New York City.
Halpern, Julius, New York City.
Haas, L. F., New York City.
Riggio, Louis D., New York City.
Ruzicka, D. J., New York City.
Stern, A. R., New York City.
Townsend, C. E., Newburgh.
Wells, S. W., Liberty.
Willard, T. H., New York City.

### NORTH CAROLINA.

Adams, M. R., Statesville.
Jones, Wm. M., Jr., Hendersonville.
Kirk, Wm. Redin, Hendersonville.
Long, H. F., Statesville.

### NORTH DAKOTA.

Crane, C. S., Grand Forks.

### OHIO.

Beam, A. H., Hillsboro.
Borts, Matthias, Cleveland.
Clapp, H. T., Cleveland.
Garlick, H. S., Cincinnati.
Rattermann, Frank L., Cincinnati.
Smith, D. B., Cleveland.
Scholtz, Moses, Cincinnati.

### OKLAHOMA.

McLennan, E. J., Medford.
Stoops, R. P., Norman.

### OREGON.

Dodds, H. C., Dufur.
Pohl, Esther C., Portland.

### PENNSYLVANIA.

Andreas, G. R., Wilkesbarre.
Buyers, Edgar Stanley, Norristown.
Banks, W. B., Philadelphia.
Douglass, W. Tyler, Harrisburg.
Duffy, Ralph, Pittsburg.
Fox, Herbert, West Philadelphia.
Foulkrod, Collin, Philadelphia.
Gilbride, John J., Philadelphia.
Hertz, John Lincoln, Lititz.
Hall, Wm. M., Conshohocken.
Hopkinson, O., Philadelphia.
Henry, John Norman, Philadelphia.
Johnson, Chas. M., McVeytown.
Kilduff, Robert O., Philadelphia.
Klopp, Peter P., Philadelphia.
Kistler, Clinton J., Lehighton.
Metheny, L. A. Sterrett, Philadelphia.
Masters, Geo. B., Rockwood.
Schiefly, John E., Edwardsville.
Sherrer, F. A., Easton.

### RHODE ISLAND.

Kingman, Eugene, Providence.

### SOUTH CAROLINA.

Blake, L. J., Spartanburg.
Lee, H. B., Summerville.
Mazyck, W., Charleston.

### SOUTH DAKOTA.

McWhorter, Port, Miller.
Templeton, C. V., Woonsocket.

### TENNESSEE.

Venn, Jos. H., Memphis.

### TEXAS.

Ardrey, L. L., Bandera.
Brown, Alexander A., San Antonio.
Boyles, James H., Houston.
Bell, Jessup D., San Antonio.
Brown, W. W., Groesbeck.
Brokaw, C. P., Dalhart.
Denman, Richard L., Lufkin.
Frizzell, Thos. D., Powell.
Ford, Frank C., Houston.
Hollis, L. W., Abilene.
Jeffries, J. W., Del Rio.
Lowry, David O., Enloe.
Lyon, James R., Rising Star.
McCarty, James F., Comanche.
Selman, H. S., Llano.
West, O. C., Del Rio.

### VERMONT.

Thomson, J. E., Rutland.

### VIRGINIA.

Baird, Thompson M., Crewe.
Buxton, J. T., Newport News.
Creasy, W. F., Newport News.
Glover, Perkins, Arvonia.
Kirk, T. Allen, Roanoke.
Pitman, W. E., Lynchburg.
Painter, Margaret V., Salem.
Robertson, L. A., Danville.
Robinson, W. L., Danville.
Rennie, John G., Petersburg.
Strohecker, T. H., Salem.
Willis, F. D., Newport News.
Wiley, R. M., Salem.

### WASHINGTON.

Russell, Walter Eugene, Walla Walla.
Stephens, L. L., Monroe.
Watkins, Harry C., Hoquiam.

### WEST VIRGINIA.

Johnson, H. R., Fairmont.
Maxwell, Cyrus H., Morgantown.

### WISCONSIN.

Birkelund, John R., Phillips.
Bancroft, H. V., Bluemounds.
Echols, C. M., Appleton.
Hinn, Louis P., Fond du Lac.
Thielke, G. O., Wausau.

## *Marriages*

George F. Chopin, M.D., to Miss Frances Gleeson, both of St. Louis, April 24.

Samuel Robinson, M.D., to Miss Ellen Derby Bellows, both of Boston, April 29.

W. E. Draper, M.D., Manilla, Iowa, to Miss Lucy Heim of Dawson, Neb., April 6.

Frank B. Harmison, M.D., Chicago, to Miss Sylvia Powers of Peoria, Ill., April 26.

Ralph E. Jennings, M.D., Chicago, to Miss Edna G. Gill, at Warsaw, Ind., April 23.

Horace L. Jones, M.D., to Miss Martha Ann Pope, both of Jackson, Tenn., April 26.

Michael F. Wansbury, M.D., to Miss Jennie Petley, both of Troy, N. Y., April 26.

Cornelius A. Barnett, M.D., to Miss Agnes Hayes, both of Potsdam, N. Y., April 24.

Claude Barton, M.D., Homestead, Pa., to Miss Olive Landis of Carlisle, Pa., April 27.

Eduardo Andrade, M.D., to Miss Mary McLaughlin, both of Jacksonville, Fla., April 26.

James Avery Draper, M.D., Wilmington, Del., to Miss Elsie Ford of St. Louis, April 26.

Edward Luke, M.D., Coin, Iowa, to Miss Delia Johnson of Monroe City, Mo., April 26.

John Lawrence Yates, M.D., Chicago, to Miss Katherine Gross of Baltimore, April 26.

Samuel D. Nixon, M.D., Chicago, to Miss Lillian Maude Reddy of Gibbon, Neb., April 27.

Roy Orchard Woodruff, M.D., to Miss Veray May Hall, both of Bay City, Mich., April 26.

Norman D. Morrison, M.D., San Mateo, Cal., to Miss Amy Bull of Santa Clara, Cal., April 26.

Robert B. Ridley, Jr., M.D., Atlanta, Ga., to Miss Roberta Render of La Grange, Ga., April 27.

Roger Durham, M.D., to Miss Helen Holman, both of Brooklyn, N. Y., at Radnor, Pa., May 10.

Charles C. Moore, M.D., Owensburg, Ind., to Miss Emma Nixon of Washington, Ind., April 16.

Thomas Hartley Hall, M.D., Macon, Ga., to Miss Carolle English of Vineville, Macon, April 26.

John Charles Darby, M.D., to Miss Winifred Bryant Dudley, both of Cleveland, Ohio, April 26.

James B. Purnell, M.D., Snow Hill, Md., to Miss Margaret R. Spence of Jacksonville, Fla., April 30.

Frank Kells Feland, M.D., Atlanta, Ga., to Miss Mollie Leila Horsley of West Point, Ga., April 25.

Jonas J. Moyer, M.D., Mayfield, Cal., to Miss Vernie Shuler of Los Angeles, at San Francisco, April 19.

Rodney Paul McLain, M.D., Iconium, Iowa, to Miss Goldie Georgia Worster of Keokuk, Iowa, April 26.

Horace T. Rivers, M.D., to Miss Eula McKinney, both of Paducah, Ky., at Jefferson City, Mo., April 25.

John H. Bunn, M.D., Cable, Ohio, to Miss Nellie Vance of Woodstock, Ohio, at Marysville, Ohio, April 22.

Theodore E. Sands, M.D., Battle Creek, Mich., to Miss Elizabeth Millspaugh, at Evanston, Ill., April 23.

Ralph Huston Spangler, M.D., Philadelphia, to Miss Marilla Kemmerer Keifer of Scranton, Pa., April 27.

William Dempsey Partlow, M.D., Tuscaloosa, Ala., to Miss Margaret Cummings Nixon of Birmingham, Ala., April 26.

Kenneth Alexander James Mackenzie, M.D., Portland, Ore., to Mrs. Marion Higgins Brown of Spokane, Wash., April 26.

## *Deaths*

**J. Howard Pugh, M.D.** Department of Medicine of the University of Pennsylvania, Philadelphia, 1852, a member of the American Medical Association; the oldest practitioner of Burlington, N. J.; congressman from the second New Jersey district in 1876; for 36 years president of the Mechanics' National Bank, Burlington; some-time president of the Burlington County Medical Society; died at his home in Burlington, April 30, from senile debility, aged 77.

**Robert Maurice King, M.D.** Jefferson Medical College, Philadelphia, 1867, treasurer of the St. Louis Medical Society, formerly lecturer on physiology and clinical medicine in the St. Louis College of Physicians and Surgeons, and professor of materia medica and clinical therapeutics in Beaumont Medical College, died at the St. Louis Baptist Hospital, May 2, two days after an operation for the removal of gallstones, from uremia, aged 61.

**Oliver Woodson Nixon, M.D.** Jefferson Medical College, Philadelphia, 1854, medical director of the Army of the Missouri, on General Pope's staff during the Civil War; twice treasurer of Hamilton County, Ohio, and thereafter devoting himself to literary pursuits; author of "How Marcus Whitman Saved Oregon"; one of the founders of Marcus Whitman College, Walla Walla, Wash., died at Biloxi, Miss., May 9, aged 79.

**Israel A. Powell, M.D.** Years of Practice, Illinois, 1900, for more than 40 years a practitioner; a member of the legislature in 1871; collector of internal revenue for the Eleventh Illinois district, under President Grant; one of the organizers of the first medical society in the Wabash Valley, died at his home in Homer, Ill., May 1, from senile debility, after a long illness, aged 79.

**Samuel Henderson Griffith, M.D.** Department of Medicine of the University of Pennsylvania, Philadelphia, 1873, surgeon (lieutenant commander) U. S. Navy, fleet surgeon of the Atlantic Training Squadron, was taken ill with cholecystitis at Guantanamo, Cuba, and brought to his home in Washington, where he died, April 23, after an illness of six weeks, aged 53.

**James Porter Parker, M.D.** Tulane University of Louisiana Medical Department, New Orleans, 1901, of New Orleans, a member of the American Medical Association, visiting surgeon to the Eye, Ear, Nose and Throat Hospital, and a most promising young scientist and physician, died at the Hôtel Dieu, New Orleans, April 27, after an illness of three weeks, aged 28.

**Lee Henry Streaker, M.D.** University of Louisville Medical Department, 1900, formerly assistant physician of the Northern Indiana Hospital for the Insane, Logansport, and physician to the Indiana Northern Penitentiary, Michigan City, died at his home in Salem, Ind., April 29, from tuberculosis, after an illness of five months, aged 30.

**John Calvin Allen, M.D.** Louisville Medical College, 1883, a member of the American Medical Association, formerly of Slaughter, East Feliciana Parish, La., but for the last eight years a resident of Baton Rouge, died at the Touro Infirmary, New Orleans, April 28, after an operation for appendicitis, aged 48.

**Story N. Goss, M.D.** Dartmouth Medical School, Hanover, N. H., 1856, assistant surgeon of the Ninth Vermont Volunteer Infantry, and later acting assistant surgeon, U. S. Army, during the Civil War, died at his home in Chelsea, Vt., April 27, from locomotor ataxia, after a long illness, aged 74.

**Andrew Douglas Hall, M.D.** University of Pennsylvania, Philadelphia, and Jefferson Medical College, Philadelphia, who was connected with the Wills Eye Hospital for 30 years, and served as surgeon in the Army during the Civil War, died at his home in Philadelphia, April 25, age 72.

**Alexander Muckle, M.D.** Department of Medicine University of Pennsylvania, Philadelphia, 1853, for many years assistant assayer and refiner at the United States Mint in Philadelphia, died at his home in that city, April 29, from cerebral hemorrhage after a short illness, aged 75.

**Albert Newman, M.D.** Darmouth Medical School, Hanover, N. H., 1850; surgeon of the Third Kansas Volunteer Infantry in the Civil War, a pioneer physician of Kansas, died at his home in Lawrence, Kan., April 28, from senile debility, after an illness of two weeks, aged 80.

**John M. Cox, M.D.** Starling Medical College, Columbus, Ohio, 1854, a member of the Ohio State Medical Society, and a practitioner of South Salem, Ohio, for more than half a century, died from pneumonia at his home in that village, April 10, after a short illness aged 81.

**Francis Wayland Campbell, M.D.** McGill University Medical Department, Montreal, 1860, dean of the Medical Faculty of Bishop's College University, and for many years editor of the *Canada Medical Record*, died at his home in Montreal, May 4, after a long illness, aged 67.

**William Cummings Shannon, M.D.** Bellevue Hospital Medical College, New York City, 1875, major and surgeon, U. S. Army, who was retired from the Army in 1898 on account of ill health, died at his home, Oakland Farm, Elkhorn, Neb., April 21, from nephritis, aged 53.

**Gilbert E. McKeeby, M.D.** Bellevue Hospital Medical College, New York City, 1868, of Pueblo, Colo., sometime state senator in Wisconsin and Nebraska, and mayor of Red Cloud, Neb., died suddenly in Pueblo from cerebral hemorrhage, April 24, aged 60.

**Albert A. Davis, M.D.** College of Physicians and Surgeons in the City of New York, 1864, a member of the New York Academy of Medicine, and the Medical Society of the County of New York, attending physician to St. Luke's Hospital, died May 6.

**William Hammond, M.D.** University of Maryland School of Medicine, Baltimore, 1847, assistant surgeon in the Army until 1853, and thereafter a resident of California, died at his home in San Francisco, May 5, aged 80.

**James B. Grady, M.D.** Jefferson Medical College, Philadelphia, 1875, formerly in the Medical Department of the Army, died at his home in Los Angeles, Cal., May 1, from cerebral hemorrhage, aged 54.

**Myron Allen Todd, M.D.** Ohio, 1876, for several terms health officer and city physician of Bradford, Pa., died at his home in that city, May 4, from septicemia, after an illness of three days, aged 58.

**Asa Hopkins Churchill, M.D.** Medical Institution of Yale College, New Haven, Conn., 1857, died at his home in Meriden, Conn., Oct. 17, 1903, from heart disease, after an illness of two years, aged 72.

**George W. Marshall, M.D.** College of Physicians and Surgeons, Keokuk, Iowa, 1873, died at his home in Lima, Ill., April 28, from cerebral hemorrhage, after an illness of one week, aged 81.

**William Milner, M.D.** University of Louisville Medical Department; 37 years' practice, Kentucky, 1893, died at his home in Union Star, Ky., April 22, from cerebral hemorrhage, aged 74.

**James M. Hutchinson, M.D.** Chicago Medical College, 1867, one of the three first internes to be appointed to Cook County Hospital, died at his home in Chicago, May 6, from paresis, aged 62.

**Clara M. Davidson, M.D.** Woman's Medical College of Pennsylvania, Philadelphia, 1893, died at her home in Newberg, Ore., April 20, from septicemia contracted in a surgical operation.

**Isaac M. Miller, M.D.** Kansas City (Kan.) University Medical Department, 1883, died at his home in La Due, Mo., April 16, after a prolonged illness, from heart disease, aged 50.

**Frank P. Harris, M.D.** Jefferson Medical College, Philadelphia, 1892, died at his home in Wilmington, Del., April 30, from pneumonia, after an illness of one week, aged 52.

**John A. Cake, M.D.** Department of Medicine of the University of Pennsylvania, Philadelphia, 1893, died at his home in Sunbury, Pa., April 23, from consumption, aged 36.

**Charles Edgar Greenman, M.D.** Albany (N. Y.) Medical College, 1889, died at his home in Troy, N. Y., April 25, from heart disease, after an illness of one day, aged 37.

**Julius Adolph Nordbrock, M.D.** New York City, 1900, died at his home in Brooklyn from rheumatism of the heart, April 25, after an illness of two weeks, aged 37.

**Frank Preston, M.D.** University of Vermont Medical Department, Burlington, 1903, of Greene, N. Y., died recently at Ticonderoga, N. Y., from pneumonia.

**James P. Foster, M.D.** Cincinnati, Ohio, 1856, died at his home in Cloverdale, Ind., February 10, from senile debility, after an illness of ten days, aged 81.

**Enoch C. Ross, M.D.** Cleveland (Ohio) Medical College, 1870, twice representative in the Ohio legislature, died at his home in Malvern, Ohio, April 28, aged 55.

**Washington L. Baird, M.D.** University of Louisville Medical Department, 1885, died recently at his home in Jackson, Tenn., and was buried, April 23, aged 65.

**John Goode, M.D.** New York University, New York City, 1858, died at his home in Magnolia, Ark., April 27, after an illness of several weeks, aged 67.

**Ithamar C. Stevens, M.D.** St. Louis, 1877, died at San Antonio, Texas, February 9, from chronic bronchitis, after an illness of four months, aged 59.

**Lawrence R. Stablein, M.D.** Missouri, 1898, died from tuberculosis at his home in Los Angeles, Cal., April 16, after an illness of several years, aged 40.

**S. H. Tindal, M.D.** Medical College of the State of South Carolina, Charleston, 1867, died suddenly at his home in Denmark, S. C., April 28, aged 73.

**William A. McCoy, M.D.** Jefferson Medical College, Philadelphia, 1884, died at his home in Dallas, Texas, April 25, from heart disease, aged 60.

**Joseph Henry Campbell, M.D.** Cooper Medical College, San Francisco, 1888, died in San Francisco in March, from pneumonia, aged about 40.

**Benjamin F. Pendery, M.D.** Examination, California, 1883, died at his home in Sacramento, April 27, after a long period of ill health, aged 53.

**Nelson C. Hancock, M.D.** Medical Department of the University of Tennessee, Nashville, 1881, died recently at his home in Chickaska, I. T.

**N. Prentiss Potter, M.D.** Medical School of Maine at Bowdoin College, Brunswick, 1871, died at his home in Bridgton, Maine, April 18.

**John R. G. Allison, M.D.** Jefferson Medical College, Philadelphia, 1884, formerly of Le Roy, Pa., died recently in Centre County, Pa.

**D'Albert Hiller, M.D.** California Years of Practice, 1876, died t his home in San Francisco, April 25, after a long illness, aged 65.

**James E. Thompson, M.D.,** died from erysipelas at his home in Kansas City, Kan., April 17, after an illness of four days, aged 54.

**Kristian G. Hofflund, M.D.** Keokuk (Iowa) Medical College, 1891, of Baltic, S. D., died recently at Dell Rapids, S. D.

**Richard W. Birchett, M.D.** Louisville Medical College, 1873, died at his home in Owenton, Ky., May 3, aged 67.

**Julia A. Powers Mills, M.D.,** died from uremia at Mills Mills, N. Y., February 10, aged 85.

## Book Notices

THE DISEASES OF SOCIETY (The Vice and Crime Problem). By G. Frank Lydston, M.D., Professor of Genito-urinary Surgery, State University of Illinois. Cloth. Pp. 624. Price, $5.00 net. Philadelphia: J. P. Lippincott Co. 1904.

As its title indicates, this book covers an extensive subject and one in which the physician as well as the sociologist is, or should be, deeply interested. The social diseases of our times as well as of the past form what we might call an attractively repulsive subject, one that is of wide general interest to the student of social problems, covering in fact the larger part of his field of investigation. Man as an individual is a bundle of evil possibilities, many of them realized, and in the aggregate he cannot be said to be much better. Lydston's book, therefore, is a portrayal of the darker side of humanity and what will be a vivid and startling one to most casual readers. Its point of view is that of a scientific materialism; the criminal and the social transgressor as a class are looked on as largely the product of heredity and environment. We say "largely" because the author admits that the pendulum of progress has swung possibly too far in the material direction and therefore rejects some of what he considers the extreme opinions of the present day. To those who read the work with an orthodox theological bias, however, there will be many things to which to take exception. The author's personality is very strongly in evidence in many ways, but the book is a live one, and one that ought to be studied by all social and moral reformers even if they can not share its author's views in all respects. To some his ideas on political and social matters will seem too pessimistic, and to others his remedies offered may appear inadequate. The reformation of society will be brought about, in his opinion, by such measures, among others, as the scientific regulation of marriage, the sterilization of criminals and defectives, etc., and he possibly does not take sufficiently into consideration the element of the idea of a super rational sanction on the motives of human conduct in the evolution of morals and in human progress. This, however, is a matter in which the reader will agree or disagree with the author according to his predilections. Lydston's humanitarian spirit, however, is manifest throughout and the most orthodox reformers will find in his practical views far more with which they are in accord than with which they must disagree. As a collection of valuable information on the subjects of which it treats too much cannot be said of the work. It is needless to say that it is written in the usual vigorous English with which the other writings of this author have made us acquainted; it is altogether one of the very best works that has yet appeared on this now more than ever engrossing branch of social study.

THE MODERN MASTOID OPERATION. By Frederick Whiting, A.M., M.D., Professor of Otology, Cornell University Medical College. Illustrated by 25 Half-tone and 23 Key Plates Made from Original Drawings. Half Leather. Pp. 353. Price, $6.00. Philadelphia: P. Blakiston's Son & Co. 1905.

The half-tone reproductions, a special feature of this work, have been excellently done from a series of artistic original drawings, true to nature, illustrating the details of the various steps in the operation, together with other drawings showing the points in the anatomy of the temporal bone which must be kept clearly in mind while performing the operation on the mastoid. In order not to detract from the clearness of these reproductions the author has made a set of pen sketches from which zinc etchings have been made. These are labeled and printed on the pages opposite the half-tone plates and serve as keys. The value of the volume as an atlas will be well worth the price of the book to one who would familiarize himself with the details of the modern mastoid operation. The illustrations will serve as an excellent guide which a beginner can use in working out for himself the technic of the operation on the cadaver. The careful attention to detail which the author has shown in the preparation of the drawings indicates well the character of the text. No detail from the preparation of the patient to the closure of the wound is too insignificant to receive his most careful critical attention. The first three chapters of the book dealing respectively with "The Development of the Operation for Drilling the Mastoid Process," "The Schwartze Operation," and "The Complete Modern Mastoid Operation, a Flap Operation," serve as an excellent introduction to the subsequent chapters on the technic of the modern operation, for a knowledge of the history of the operation on the mastoid is necessary for an understanding of the modern operation and a just appreciation of its various details. The chapters on the technical portion of the operation also show painstaking critical attention to detail. The clear and definite manner in which each step of the operation is treated gives evidence of the careful work of the experienced surgeon. The author makes a strong plea for the flap method of making the opening in the integument, and also for the complete exenteration of all the mastoid cells. His logical conclusions on these questions have the support of an ample experience with the other methods in vogue.

THE VERMIFORM APPENDIX AND ITS DISEASES. By Howard A. Kelly, A.B., M.D., Professor of Gynecology in the Johns Hopkins Hospital, Baltimore, and E. Hurdon, M.D., Assistant in Gynecology in the Johns Hopkins University, Baltimore. With 399 Original Illustrations. Some in Colors, and 3 Lithographic Plates. Cloth. Pp. 827. Price, $10.00 net. Philadelphia and London: W. B. Saunders & Co. 1905.

This is by far the most elaborate work that has yet appeared on this subject. The opening fifty pages are historical and trace in an interesting manner the growth of our knowledge of the affections of the appendix and their treatment. Following are about one hundred and fifty pages devoted to the anatomy and physiology of this organ and associated parts. Here one finds not only practically all of the almost innumerable anatomic variations of this region carefully described and depicted, but also an extensive description of its embryology and comparative anatomy. There is scarcely a clinical form, or a symptom or a complication of this multiform disease which is not mentioned, and many unusual cases and interesting points connected therewith not elsewhere published have been obtained by personal communication from many prominent operators throughout the country. An interesting chapter is that on appendicitis in typhoid fever. That the appendix should be involved in typhoid fever is not surprising considering the large amount of lymphoid tissue contained in it. In a number of cases the symptoms referable to the appendix have overshadowed for the time those due to the typhoid fever, and operations have been done, the cases subsequently passing through a regular typhoid. An entire chapter is devoted to appendicitis in the child, and the frequency with which mistakes in diagnosis are made in these young subjects, with resulting improper treatment, is clearly presented. The treatment, which is of so much interest at this time, is handled in a very judicious manner. One very pertinent sentence will bear repeating and should never be forgotten. "It may be positively stated that no case of appendicitis where an operation was necessary was ever operated on too soon, and when the decision to operate is made no consideration, however plausible, should be admitted as a reason for unnecessary delay." The publisher's part has been unusually well done, and the illustrations are unequaled in excellence in any similar work which has been presented to the profession. In fact the illustrations are marvels of excellence and are a credit to all concerned. The authors and publishers deserve special credit for the volume.

Climate and Health in Hot Countries and the Outlines of Tropical Climatology. A Popular Treatise on Personal Hygiene in the Hotter Parts of the World, and on the Climates That Will Be Met with Within Them. By Lieut.-Col. G. M. Giles, M.B., F.R.C.S., Indian Medical Service (Retd.). Cloth. Pp. 109. Price, $3.00 net. New York: William Wood & Co. 1905.

The first and larger part of this volume is devoted to a popular exposition of the points of personal hygiene as applied to hot countries. Although written for the non-professional reader, it is of interest and value to physicians as well. The subject is treated under such headings as housing and domestic architecture, clothing, water and food, the tropical day, management of children in hot climates, tents and camp sanitation, prevention of malaria, prevention and treatment of common tropical diseases. The author writes with authority and his recommendations show that he is perfectly conversant with the conditions which must be met by traveler and resident in the tropics. The second part is devoted to a detailed description of localities within the tropics. The fact that climates in the hot parts of the world vary more than those in temperate zones is not generally appreciated. Numerous meteorologic tables increase the usefulness as a book of reference. As is to be expected of an English writer, those countries which are dependent on Great Britain are most fully described. Fifty-seven pages are devoted to the lands bordering the Mediterranean, other portions of Africa, Madagascar, Mauritius, the Red Sea and its coasts, Asia, the Malay Archipelago, Northern Australia and the Pacific islands, but less than twenty are given to the American continents, i. e., the southern states of this country, Mexico, West Indies, tropical South America, Bermuda and Madeira. Although the subject of tropical hygiene is intrinsically interesting, it now appeals to Americans more than formerly, since many of our people will hereafter live within the tropics.

The Preparation and After-Treatment of Section Cases. By W. J. Stewart McKay, M.B., M.Ch., B.Sc., Senior Surgeon of the Lewisham Hospital for Women and Children, Sydney. Cloth. Pp. 651. Price, 15 shillings net. London: Baillière, Tindall & Cox. 1905.

Mr. McKay was a co-worker with Christopher Martin under the late Lawson Tait. His training, though supplemented by continental observation, is distinctly British, and his books reflect the methods in vogue in Britain in the preparation and post-operative management of celiotomies. As American operators are now closely in touch with continental surgeons, they will doubtless be interested in the viewpoint of the British laparotomist transplanted, though he be, to antipodal shores. The object of Mr. McKay has been to prepare for the beginner in abdominal technic, a work so circumstantial and minute in its method as to take the place of a hospital interneship, as far as possible. He has certainly brought together a remarkable amount of elementary information, much of which will be of value to the experienced surgeon, while the frequent references to individual cases gives a touch of concreteness to theoretical statement. The author discusses with much ability the complications occasionally observed after abdominal section, and enters into their management or relief by secondary operation with his customary thoroughness. It is a pleasure to commend a book into which the writer throws himself so unreservedly and generously as does Mr. McKay in the present work.

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## *Miscellany*

**Proportion of the Sexes in the United States.**—Statistics of the United States Census Bureau show that there are in the United States 1,638,321 more males than females, the relative excess of males being greater than the average for all countries whose population has been counted with distinction of sex. The cities of the United States, however, contain more females than males. Perhaps more women find employment in cities.

**The Automobile and Tuberculosis.**—A French physician, M. Blanchet, advises the use of the automobile by consumptives. He claims that the rapid movement in the open air reduces the tendency to cough and improves the appetite. It causes refreshing sleep, the motion acting as a sedative to the nervous system and the increased oxygenation assisting to the same effect. The dangers of the automobile are dust, which should be avoided, chilling the cutaneous surface, and overdoing the exercise by excessive speed. Great speed induces anxiety and enervates the patient.

**Resection of Nerve for Gangrene of Foot.**—Bardescu of Roumania reports in *Spitalul*, No. 22, 1904, the case of a farmer, 33 years old, who suffered from painful, spontaneous gangrene of one foot. Epidural cocainization failed to relieve, as also stretching of the external and internal popliteal nerves. Finally, the internal popliteal nerve was resected for 4 to 5 cm. in the popliteal space, and the pains were at once abolished. The gangrene also began to show signs of demarcation, allowing disarticulation later under favorable circumstances. The sensibility of the entire region returned.

**Pharmacist and Physician.**—"At present the market is flooded with ready-made preparations suitable for all ills and diseases. All that is required is to read the printed matter on such a package, follow the directions, take from one to twenty bottles and you are cured. It requires no skill or knowledge to sell these preparations, either by a graduate pharmacist or by a department store clerk who does not know arsenic from indigo." Thus wrote J. H. Droge in the *Pharmaceutical Era*. His words apply well to some remedies used by physicians and it requires little knowledge to prescribe these remedies.

**The Best General Liniment.**—Looking over the whole field of such preparations, and having used it in practice for over thirty-five years, the *National Druggist* declares the following to be the best liniment for general use:

℞. Glacial acetic acid.
Oil of turpentine, āā....................℥i 30|
Yolk of one egg.
Water q. s. ad........................℥viii 240|

Mix the oil of turpentine, yolk of egg and acetic acid by shaking vigorously together. To the resultant emulsion add the water, a little at a time, shaking well after each addition. Of course, this must not be used on an inflamed surface.

**Tobacco and Audition.**—According to Delie (*Revue Hebdomadaire de Laryngologie*), tobacco has a direct action on the auditory nerve, producing a trophoneurosis by its action on the circulation through the sympathetic. Like other toxic neurites it is progressive, affecting both ears simultaneously without affording any objective symptoms. He specially advises caution in the use of tobacco by those subject to weakness of audition or ear disease, or those predisposed to arteriosclerosis by heredity, all the more so the younger the patient. L. Schott of Nauheim has observed arterial sclerosis in smokers of fifteen years of age, and Wyatt-Wingrave has found eight cases of nervous deafness among patients aged between twenty-four and forty years.

**Tuberculosis Mortality in Paris.**—Tuberculosis is the cause of between 12,000 and 13,000 deaths per annum in the city of Paris, or about a quarter of the total mortality. Ferdinand Marie-Davy (*Journal de Hygiene*) reports a study of the subject with special reference to the density of population in the different sections of the city and also with special reference to the ventilation, using the number of doors and windows per each house dweller as an index. The proportion of deaths from tuberculosis ranges from 1.3 per 1,000 in the eighth *arrondissement*, where the proportion of doors and windows is 4.2 for each inhabitant, to 8.2 per 1,000 in the twelfth *arrondissement*, where there are only 1.8 doors and windows per inhabitant. This proportion of doors and windows is in accordance with a certain interior space and therefore affords an index to the overcrowding of the population as well as to the ventilation. The importance of these factors in the mortality from tuberculosis is sufficiently evident.

**Social and Economic Importance of Physicotherapeutics.**—Buxbaum remarks that the science of therapeutics during the last ten years has passed through three phases: 1, polypragmatism; 2, nihilism, and 3, physicotherapeutics. It is still in the latter period. Hydrotherapy, massage and movements are among the most important branches of physicotherapy, and the lay public prefers this kind of treatment to drugs. Physicians are slow to recognize this, but irregulars have long appreciated it and flourished as "nature healers," etc. A "nature cure" society was founded not long ago at Vienna, and by the end of the year it had over 30,000 members. One woman, who had been cured by a course of hydrotherapy of anemia, lack of appetite and lassitude, reproached her former physician that he had tried to dissuade her from taking the course. She cited his words to the effect that hydrotherapy could do her only harm, as she was intensely anemic, and the water would deprive her of vital heat, which she needed. She had much better leave water alone and take iron. Such statements, coupled with the unmistakable success of the hydrotherapy, do much to lower the prestige of the profession and drive patients to irregulars.

**Anesthesia by the Rectum.**—In 1847 Pirogoff demonstrated that general anesthesia could be produced by the introduction of ether vapor into the rectum. More recently another Russian surgeon, A. V. Krougilitch (*Voyenno Medicinsky Journal*) has experimented with the method and claims that it has decided merits. The patient quickly comes under the influence of the vapor sufficiently to permit of major operations being performed. Occasionally, however, the anesthesia is insufficient, then he supplements it with a few whiffs of chloroform, repeating it in minute doses as required. Rectal anesthesia is, he says, the method of choice for operations on the head and neck and he advises it also for other operations on account of its comparative safety, except in cases where it is contra-indicated by inflammatory conditions of the intestines, peritonitis, etc. He precedes the administration, after a cathartic has taken effect, by washing out the intestines, followed by a general bath, and uses a special apparatus permitting the outflow of the liquid formed by the condensation of the ether vapor. There is at first a slight intestinal irritation or tenesmus lasting only two or three minutes. There is rarely any preliminary excitement and only slight and transitory reactive phenomena.

**The Physician's Hardest Problem.**—In beginning his career the young physician finds his hardest problems to be those of diagnosis and treatment. But as the years give him opportunities for observation and experience he begins to realize that the problems of disease *per se* are as nothing compared with those presented by each individual patient's habits, character and disposition. In his college course he is taught to regard each disease as a pathologic entity. In his practice he finds that few diseases present classical aspects and that pathologic conditions are almost invariably modifications or variations of a type. When a physician awakes to this all-important fact his real usefulness as a practitioner of medicine just begins. From now on he will individualize his cases and adapt his treatment to conditions as he finds them in each patient. He will recognize, therefore, how important a bearing habits, disposition and environment, to say nothing of heredity, have on the symptoms of the disease he is called on to treat, and henceforth, if he is wise, he will treat his patients and not their disease. It is easy to give drugs for each ailment, but it is not easy to correct the errors of diet, hygiene, etc., the influences of temperament and of environment that modify each disease. Herein lies the physician's hardest problem.—*Vermont Medical Monthly.*

**Delivery of Twins with an Interval of Seventeen Days.**—Pauplin reports the case of a married woman of twenty-five who was delivered of a living child, and soon thereafter of a normal placenta, during the eighth month of her second pregnancy. A second fetus was distinctly palpable, its heart sounds being clear and loud. Some soft tissue could be felt in the vagina, and adjoining it on the left a cervix was found, comparatively hard and firm, its external orifice being partially closed. The examining finger could not pass through the cervical canal. Labor pains stopped completely, and the woman went to sleep. The next day no uterine contractions could be observed. There were no lochia nor any signs of the secretion of milk. Nine days later the patient left the bed. Sixteen days after the delivery of the first child the membranes of the other fetus ruptured suddenly, and the next morning another living child was born. The placenta was shortly afterward expelled. Like the first, the second puerperium took an absolutely normal course. This time the breasts soon became engorged, and milk was secreted in sufficient quantities for both children. An examination a few weeks later showed that the uterine cavity was divided into two sections by a broad septum, the presence of which was ascertained with the uterine sound. On palpation the uterus did not show any anomalies.—*Interstate Medical Journal.*

**The Remedy for Fraud in Medicine.**—We must reform our ways. We must cultivate the highest ethical (and that means moral) standard, so that we shall be looked on as the first refuge in the hurricane of greedy selfishness that is overwhelming society since the era of the captain of industry began. Be pure and clean; think, feel, act and speak only from the most disinterested motives; and the time will not be long when the world will recognize your worth and trust you as you deserve. Nothing is so urgently needed to-day as men who are worthy of confidence. We must improve our methods of treatment. We must use better remedies, and must apply them more intelligently. We must study our cases better, must learn to recognize the pathologic conditions, rather than to name the diseases. We must learn to know our remedies, and to see the precise indications for the use of precise remedial agents; and to recognize the effect of these so that we use neither too little nor too much, but just enough to accomplish our definite, well-considered purposes. Guess-work and chance must be eliminated from our practice. We must be prepared to use that most impressive branch of our art, prognosis, so as to teach our patients our mastery of the case in a way no pretender can possibly do. These are the things that make for better physicians, and we can not afford to be turned aside from anything that tends in that direction, by the sneers of self-interest or arguments addressed to prejudices, that do not touch the merits of the question. And if there be any other or better methods of opposing quackery I know of them not.—W. F. Waugh, in *Alkaloidal Clinic.*

**Tabes and Virility.**—G. Milian (*Archives Generales de Medecine*) reports the results of a study of twenty-six tabetics, twenty-one men and five women, with special reference to their reproductive capacity and heredity. (Luetic infection was proved in twenty-one cases. The total percentage of syphilis was 88.46. This nearly agrees with that of Fournier of 90 per cent.) Milian finds that the majority of these patients preserved their virile power intact. In a few it was impaired and very rarely was there complete impotence, which was chiefly observed in cases where there were vesical symptoms. The fecundity seems to be diminished, as the number of sterile marriages was large. This, as well as the great mortality among the children, he attributes to the pre-existing syphilis rather than to the tabes itself. Most of the cases reported as hereditary tabes have been cases of Friedreich's disease. Cases of undoubted hereditary tabes occur (Remak, Babinski) but are extremely rare. This small proportion as compared with the much larger one of cases of juvenile tabes in children of syphilitic parents suggests the probability of hereditary syphilis being the direct cause. The proportion of children of tabetics affected with nervous diseases is large but no more so than in cases of children of syphilitic parents; and hereditary syphilis may be assumed as the probable cause and not specially aggravated by the later occurring tabes. The conclusion he considers is not absolutely definite but one that may be modified by a more extensive research. It is rather a notable fact, however, that Pitres found a larger proportion of still-born and prematurely dying children among those born of subsequently tabetic parents than among those born after the appearance of the tabetic symptoms, and Milian's figures accord with those of Pitres.

**Taxing Cripples.**—The New York legacy tax law is characterized by *Charities* as a tax on the lame, the halt and the blind. It is not the institution as a co-operative entity which suffers from the tax, but the beneficiaries of the institution. "It will be remembered that in the case of the federal war revenue tax law, a similar situation was presented and the action of Congress in repealing the tax on benevolent institutions and in refunding all taxes paid by such institutions may be recorded as indicative of the general opinion on the subject, and of the force of the reasons against such taxation in their effect on clients disposed to leave their property to public institutions —institutions which save the state great expense in the care of certain classes. The policy to exempt legacies to such institutions from such succession taxes has been adopted and is in force in Maine, Massachusetts, New Jersey, Virginia, Ohio, Illinois, California and other states. That the New York law is absurd is shown by a glance at its operation. A legacy to a tract society is exempt, a legacy to a hospital is subject to taxation; property left to a bishop—even for his own personal use—is exempt, to a charitable society is subject; a legacy of less than $10,000 left to a relative is exempt, a like amount left to an educational institution is subject to the full tax." The court of appeals, in construing the act in a certain case, called the act "an assault on charitable transfers," and said: "The organized charities and benevolent agencies which actually relieve human misery, and labor in unselfish devotion to improve the moral and physical condition of mankind, are alike the fruits and aids of good government, and to exempt their property—usually gifts of the benevolent—from the burdens of taxation is scarcely less the duty than the privilege of the enlightened legislator. Clearly this exemption should be placed on broad, equitable grounds."

## *Queries and Minor Notes*

ANONYMOUS COMMUNICATIONS will not be noticed. Queries for this column must be accompanied by the writer's name and address, but the request of the writer not to publish his name will be faithfully observed.

### TOTAL REMOVAL OF A LUNG.

NEW HAVEN, CONN., April —, 1905.

*To the Editor:*—Where can I find literature and histories of removal of lung for empyema? Are there any cases on record of complete removal of one lung? CHARLES R. MITCHELL.

ANSWER.—An entire lung has not been successfully removed from man, but it has been removed experimentally from animals. A very extensive bibliography of the subject is found in Rickett's "Surgery of the Heart and Lungs," published by the Grafton Press, New York City, 1904, price $5.

## *State Boards of Registration*

### COMING EXAMINATIONS.

New York State Homeopathic and Eclectic Boards, New York, Albany, Syracuse and Buffalo, May 16-19. Chief of Examinations Division, Charles F. Wheelock, State Capitol, Albany.

Board of Medical Examiners of the State of North Carolina, Greensboro, May 17. Secretary, George W. Pressly, M.D., Charlotte, N. C.

The Nebraska State Board of Health, Lincoln, May 31 and June 1. Secretary, George H. Brash, M.D., Beatrice.

Minnesota State Board of Medical Examiners, Old State Capitol Building, St. Paul, Minn., June 6-8. Secretary, C. J. Ringnell, M.D., Minneapolis.

Board of Medical Examiners of Wyoming, State Capitol, Cheyenne, June 7. Secretary, S. B. Miller, M.D., Laramie.

Michigan State Board of Registration in Medicine, The Capitol, Lansing, June 13. Secretary, B. D. Harison, M.D., Sault Ste. Marie.

State Board of Medical Registration and Examination of Ohio, Cleveland, Columbus and Cincinnati, June 13-15. Secretary, Frank Winders, M.D., Columbus.

Board Representing the President and Fellows of the Medical Society of Delaware, Dover. June 20-22. Board Representing the Homeopathic Medical Society of Delaware, Wilmington, June 20-22. Secretary of the Medical Council of Delaware, P. W. Tomlinson, M.D., Wilmington.

State Board of Medical Examiners of New Jersey, Trenton, June 20-21. Secretary, E. L. B. Godfrey, M.D., Camden.

Medical Examining Board of Virginia, Richmond, June 20-24. Secretary, R. S. Martin, M.D., Stuart.

Board of Medical Examiners of Maryland, Baltimore, June 21-24. Secretary, J. McP. Scott, M.D., Hagerstown.

Medical Council of Pennsylvania, Philadelphia and Pittsburg, June 27. Secretary of the Medical Council, H. C. Shaeffer, M.D., Harrisburg.

**Rhode Island April Report.**—Dr. G. T. Swarts, secretary of the Rhode Island State Board of Health, reports the written examination held at Providence, R. I., April 6 and 7, 1905. The number of subjects examined in was 7; total number of questions asked, 70; percentage required to pass, 75. The total number examined was 9, of whom 5 passed, and 4 failed. The following colleges were represented:

| College. | Year Grad. | Per Cent. |
|---|---|---|
| PASSED. | | |
| Harvard University (1901) 81; | (1904) | 82 |
| Yale University | (1903) | 90.2 |
| University of Pennsylvania | (1904) | 86.6 |
| Baltimore Medical College | (1900) | 78.1 |
| FAILED. | | |
| Maryland Medical College | (1904) | 72.4 |
| University of Vermont | (1898) | 73.7 |
| Baltimore Medical College | (1904) | 68.1 |
| Kentucky School of Medicine | (1904) | 70.1 |

**Minnesota April Report.**—Dr. C. J. Ringnell, secretary of the Minnesota State Board of Medical Examiners, reports the written examination held at St. Paul, April 4-6, 1905. The number of subjects examined in was 12; total number of questions asked, 95; percentage required to pass, 75. The total number of applicants examined was 17, of whom 13 passed and 4 failed. The following colleges were represented:

| College. | Year. Grad. | Per Cent. |
|---|---|---|
| PASSED. | | |
| Toronto University | (1896) | 79.9 |
| McGill University | (1882) | 75.55 |
| Laval University | (1904) | 76.8 |
| Hamline University | (1903) | 75.55 |
| Washington University | (1904) | 77.55 |
| Jefferson Med. College | (1893) | 83.8 |
| University of Michigan | (1901) | 75.2 |
| College of P. & S., Chicago (1902) 82.45; | (1904) | 75.35, 78.8, 78.7 |
| Rush Med. Coll (1882) 82.45; | (1902) | 88.1 |
| FAILED. | | |
| Hamline University | (1904) | 72.6, 67 |
| Keokuk Med. Coll | (1884) | 66.65 |
| College of P. & S., Chicago | (1904) | 73.5 |

The following questions were asked:

MEDICAL JURISPRUDENCE.

1. Define viability; at what period of pregnancy is it usually manifest? 2. In death of a mother from suspected abortion, what postmortem condition of the genitalia would corroborate this suspicion? 3. What symptoms and postmortem conditions would lead you to search for strychnia in the stomach? 4. In a case of drowning, what postmortem conditions would you expect to find? 5. In a case of death from hydrocyanic poisoning, what symptoms and postmortem condition would obtain?

THEORY AND PRACTICE.

1. Define chorea and give treatment. 2. Give general treatment for acute eczema. 3. Define gout; give prognosis and treatment. 4. Give symptoms and prognosis of chlorosis. 5. Give symptoms and diagnosis of cerebral abscess. 6. Give etiology and diagnosis of cardiac dilatation. 7. Give etiology and prognosis of gastric hemorrhage. 8. How would you manage a case of acute appendicitis? 9. Give etiology and treatment of progressive pernicious anemia. 10. Diagnose acute pleurisy with effusion from pneumonia and empyema.

SURGERY.

1. How should a patient be prepared for the administration of ether or chloroform? 2. Describe traumatic fever, its causes and symptoms. 3. What are the peculiarities of a chronic ulcer; how should it be treated? 4. What are the symptoms and what the treatment of acute prostatitis? 5. Treat a case of fracture of the femur in a child. 6. What is necrosis, its causes, symptoms and treatment? 7. Describe a case of hematocele and the treatment of same. 8. What are the symptoms of stone in the urinary bladder? 9. How would you treat ankylosis? 10. What are the various dislocations of the humerus and the methods of effecting a reduction?

DISEASES OF CHILDREN.

1. Give differential diagnosis between iliocolitis and cholera infantum. 2. Give symptoms and treatment of empyema. 3. Give symptoms of acute anterior poliomyelitis; also differentiate fully from multiple neuritis. 4. Give the early symptoms and usual course of hip-joint disease. 5. How would you usually manage and treat a severe case of chorea in a girl 8 years old?

OBSTETRICS.

1. Give differential diagnosis between pregnancy; ovarian systoma; ascites; myoma. 2. Give anatomic differences between male and female pelvis and their significance. 3. Describe the normal mechanism of labor. 4. What conditions cause antepartum hemorrhage? How is it treated? 5. Describe your method of applying the forceps high; low? 6. How do you guard against rupture of perineum? Treatment if it occurs. 7. What is Cesarean section? When used? 8. What is postpartum hemorrhage? How treated? 9. How do you manage third stage of labor? What precautions do you use to prevent infection of mother? Of child?

DISEASES OF WOMEN.

1. Give symptoms and diagnosis of fibroid tumors of the uterus. 2. What are the principal diseases and symptoms of the female

generative system caused by gonorrhea? 3. Give treatment, mechanical and surgical, of retroversion of the uterus. 4. Give causes and symptoms of pelvic hematocele. 5. Give symptoms and treatment of cystitis in women.

### MATERIA MEDICA AND THERAPEUTICS.

1. What is the physiologic action of a full dose of atropin? 2. Name the principal drugs whose continued use is liable to produce a drug habit. 3. What is the physiologic action of saline purgatives? Name two, with dose of each. 4. Prescribe an ointment for a case of scabies in an adult. 5. What is wrong with this prescription? ℞ Sodii boratis, dram j; tinct. myrrhæ, oz. ij; *aquæ q. s., ad oz. iv; misce et solve. Sig.: Use as a gargle.* 6. Name the three best cardiac tonics, giving the preparation and dose of each. 7. Give a single dose for an adult, a dose that will be effective yet not dangerous, of each of the following: Extract of nux vomica; yellow mercurous iodid (protiodid); phenacetin; extract of aloes; codein. 8. How would you treat scurvy in a child of eighteen months? 9. What hypnotic would you use for an adult? Give dose. 10. What may the diabetic eat and what should he avoid?

### CHEMISTRY, TOXICOLOGY, URINALYSIS.

1. What substances cause explosion when mixed with potassium permanganate? 2. Give chemical test for determining the presence of lactic acid in stomach contents. 3. Give treatment of acute carbolic-acid poisoning. 4. What abnormal constituents are found in the urine in nephrolithiasis? 5. Name four (4) proteids of the blood found in the urine in various *pathologic conditions of the kidneys, the blood, or the system at large.*

### ANATOMY.

1. Describe the greater trochanter of *femur*, name muscles attached to it. As a landmark, how is it found? 2. Describe the elbow joint, briefly, and name ligaments in formation of same. 3. Name the *muscles that bring about the movement of circumduction* of the thumb. 4. Give collateral circulation around the scapula, after ligature of the third part of the subclavian artery. 5. In making an incision through the abdominal wall at McBurney's point, what structures are incised, and give direction of muscular fibers of each muscle. 6. In the operation for stretching the median nerve, at what point is it reached, and *give relations.* 7. In *Pott's fracture*, name bones that may be involved. 8. Give sensory nerve supply of the anterior surface of the thigh. 9. Name the openings of the orbit and their contents. 10. Make a diagram of the abdominal region and indicate the principal anatomic landmarks.

### PHYSIOLOGY.

1. What part, if any, do the lacteals play in the absorption of proteids? Of fats? Of sugars? 2. Where do white corpuscles originate, and where are they finally destroyed? 3. What are polysaccharids? Name one, and give its chemical formula. 4. Name and describe two of the most important proteids of the blood-plasma. 5. Trace the various steps in the digestion of a bolus of food containing albumen, fat, sugar and starch. 6. Tell *how urea is formed, and how and by what channel excreted.* 7. What is the function of the cerebellum? Medulla oblongata? *8. Describe and locate the spleen, giving its physiology.* 9. From what center are the vasomotors controlled? 10. Give a brief description of the portal circulation.

### EYE AND EAR.

1. Define: Astigmatism, hyperopia, myopia, heterophoria, heterotropia. 2. Give *test for color sense.* 3. Give varieties, diagnosis and treatment of purulent conjunctivitis. 4. Name three (3) diseases of the eye occurring in diabetes mellitus. 5. Give cause, symptoms and diagnosis of acute *otitis* media.

### HISTOLOGY AND PATHOLOGY.

*1. Describe following* varieties of epithelium and state where found: Pavement, columnar, ciliated. 2. Describe red and white blood corpuscles; give function of each. 3. Give histology of striated muscle. 4. Differentiate serous and synovial membranes; state where found. 5. Name and describe the glands found in mucous membrane. 6. Describe structure of the aorta and pathologic changes in arteriosclerosis. 7. What is the result of admitting air into the veins? 8. Differentiate fatty degeneration and fatty infiltration; give cause of each. 9. Define tumor; give classification. 10. Describe briefly the pathologic changes taking place in acute lobar pneumonia.

# *The Public Service*

## Army Changes.

Memorandum of changes of station and duties of medical officers, U. S. Army, week ending May 6, 1905:

Borden, W. C., surgeon, detailed to represent Medical Department at meeting of Interstate National Guard Association, at St. Paul, Minn., June 19, 1905.

Duncan, Wm. A., Bruns, Earl H., and Gibner, Herbert C., asst.-surgeons, appointed first lieutenant, asst.-surgeons, to rank from May 1, 1905.

Raymond, H. I., surgeon, leave of absence extended two months.

Ekwurzel, Geo. M., asst.-surgeon, left West Point, N. Y., with cadets, en route to Gettysburg, Pa., for field exercise.

Roberts, Ernest E., contract surgeon, granted three months' leave of absence, in the United States.

Hutson, T. Ogier, contract surgeon, ordered from Beaufort, S. C., to Fort Oglethorpe, Ga., to accompany the Third Squadron, Seventh Cavalry, *to Philippine* service.

Adair, George W., contract surgeon, left Fort Wadsworth, N. Y., and arrived at Fort Banks, Mass., for temporary duty.

McCall, James H., contract surgeon, arrived at Fort Howard, Md., for temporary duty; granted leave of absence for twelve days.

## Navy Changes.

Changes in the medical corps, U. S. Navy, for the week ending May 6, 1905:

Dunn, H. A., asst.-surgeon, ordered to the *Terror*, May 1.

Huntington, E. O., surgeon, *detached from the Naval and Marine* Recruiting Stations, Chicago, Ill., and ordered to the *Albatross*.

Thompson, J. C., P. A. surgeon, detached from the *Albatross* and *ordered* home *to* wait *orders.*

Moore, J. M., P. A. surgeon, ordered to duty at the Naval and Marine Recruiting Stations, Chicago, Ill.

Wheeler, W. M., surgeon, ordered to the *Cleveland*, sailing from New York about May 10.

Holcomb, R. C., P. A. surgeon, detached from the *Cleveland* and ordered to the Naval Station, Culebra, W. I.

Angeny, G. L., P. A. surgeon, detached from the Naval Station, Culebra, W. I., and ordered home to wait orders.

Hammer, A., pharmacist, detached from the Navy Yard, New York, and ordered to the Army General Hospital, Fort Bayard, N. M., for treatment.

Brister, J. M., P. A. surgeon, detached from the Naval Hospital, Philadelphia, and ordered to the *Atlanta*.

## *Public Health and Marine-Hospital Service.*

List of changes of station and duties of commissioned and noncommissioned officers of the Public Health and Marine-Hospital Service for the seven days ending May 3, 1905:

Vaughan, G. T., *assistant surgeon general, relieved from duty* in charge of the Bureau Division of Sanitary Reports and Statistics, *and assigned to duty in charge of* the Bureau Division *of Marine Hospitals and Relief.*

Eager, J. M., assistant surgeon general, assigned to duty in charge of the Bureau Division of Sanitary Reports and Statistics.

Carmichael, D. A., surgeon, granted leave of absence for fourteen days from May 12.

Woodward, R. M., surgeon, to proceed to Providence, R. I., for special temporary duty.

Robinson, D. E., P. A. surgeon, detached from the Marine Hospital, Port Townsend, Wash., and directed to report to medical officer in command, Port Townsend Quarantine, for temporary duty.

Currie, D. H., P. A. surgeon, to report to medical officer in command, Marine Hospital, San Francisco, for temporary duty.

*Burkhalter, J. T., asst.-surgeon, bureau telegram of April 24,* 1905, granting leave of absence for three days from April 27, 1905, amended to read two days.

Adams, F. B., acting asst.-surgeon, granted leave of absence for ten days from April 29.

Rosello, M. M., acting asst.-surgeon, granted leave of absence for twenty-three days from May 15.

Safford, M. V., acting asst.-surgeon, granted leave of absence for two days from April 30, 1905, under Paragraph 210 of the Regulations.

Gahn, Henry, pharmacist, to proceed to Washington, D. C., for special temporary duty.

Woods, C. H., *pharmacist, granted leave of absence* for thirty days from May 15.

Gibson, F. L., *pharmacist*, granted *leave* of absence for twelve days from May 6.

## Health Reports.

The *following cases of smallpox, yellow fever,* cholera and plague have been reported to the Surgeon General, Public Health and Marine-Hospital Service, during the week ended May 6, 1905:

### SMALLPOX—UNITED STATES.

District of Columbia: Washington, April 22-29, 1 death.

Florida: Jacksonville, April *23-30*, 5 cases.

Illinois: April 22-29, Chicago, 21 cases; Danville, 3 cases.

Louisiana: New Orleans, April 22-29, 16 cases, 1 death; five cases imported.

Missouri: April 22-29, St. Joseph, 3 cases; St. Louis, 21 cases, 1 death.

Nebraska: South Omaha, April 23-30, 1 case.

New York: New York, April 22-29, 1 case.

Ohio: Cincinnati, April 21-28, 4 cases; Toledo, April 15-22, 1 case.

Pennsylvania: April 22-29, Altoona, 3 cases; infection imported. Lebanon, 3 cases; Steelton, 1 case; York, 13 cases.

South Carolina: Charleston, April 22-29, 4 cases.

Tennessee: Memphis, April 22-29, 9 cases.

Wisconsin: LaCrosse, April 15-22, 2 cases; Milwaukee, April 15-29, 6 cases.

### SMALLPOX—FOREIGN.

Canada: Hamilton, April 20-27, 2 cases.

Chili: Antofagasta, Jan. 24-31, 1 death.

France: Marseilles, March 1-31, 1 death; Paris, April 8-15, 29 cases, 1 death; St. Etienne, March 17-31, 1 case.

Great Britain: Hull, April 1-8, 3 cases; April 8-15, Southampton, 4 cases, 2 deaths; South Shields, 6 cases.

India: Bombay, March 28-April 4, 118 deaths; Calcutta, March 25-April 1, 11 deaths; Karachi, March 26-April 2, 8 cases; Madras, March 25-31, 7 deaths.

Italy: Catania, March 30-April 6, 3 deaths; *Palermo*, March 25-April 15, 46 cases, 4 *deaths.*

Russia: Moscow, March 25-April 8, 9 cases, 3 deaths; *Odessa*, April 8-15, 8 cases, 1 death.

Spain: Cadiz, March 1-31, 2 deaths.

Straits Settlements: Singapore, March 11-18, 2 deaths.

Turkey: Constantinople, April 8-16, 6 deaths.

### YELLOW FEVER.

Mexico: Coatzacoalcos, April 8-15, 1 case, 1 death.

### CHOLERA.

India: Calcutta, March 25-April 1, 71 deaths.

### PLAGUE.

Africa: Cape Colony, March 18-25, 3 cases, 1 death.

Arabia: Aden, March 31-April 7, 11 cases, 10 deaths.

Chili: Antofagasta, March 1-28, 1 case; Arica, March 27, 3 cases; Pisagua, to March 21, 133 deaths; Valparaiso, March 31, 1 case.

India: Bombay, March 28-April 4, 681 deaths; Calcutta, March 25-April 1, 719 deaths; Karachi, March 26-April 2, 168 cases, 155 deaths.

Peru: March 26-April 2, Chiclayo, 7 cases, 4 deaths; Eten, 1 case; Lambayeque, 1 case; Cheplu, 3 cases, 3 deaths; San Pablo, 1 death; Mollendo, 16 cases, 3 deaths; Lima, 1 case, 2 deaths.

# *Medical Organization*

## THE STATUS OF ORGANIZATION IN MISSOURI.

By J. N. McCormack, M.D.

Chairman of the Committee on Organization of the American Medical Association.

BOWLING GREEN, KY.

In making an extended itinerary in Missouri, carefully planned by the council and covering every geographical division of the state, an opportunity was given for a close study of professional affairs, and the causal conditions producing and modifying them. In a state with practically unlimited agricultural and mineral wealth, with a total population of 3,500,000, over 6,000 physicians, and with soil, products and material development as varied as it is possible to imagine, problems were presented in medical sociology as complex and interesting as those found in any other state I have visited.

There is a sense in which Missouri is a newer state than the bare facts of its history would indicate. It is only in recent years, comparatively, that its great natural wealth has been fully understood, and since then the development has been by leaps and bounds. The medical profession has had its full share of this growth, as indicated by the abundant representation in it from every section and country, and the over-supply of medical schools within its own borders. The proper assimulation of such a rapidly accumulating and diverse professional material would have been difficult under any circumstances, and but little effort was made in this direction. Two years ago the Missouri State Medical Association had but 258 members, less than 4 per cent. of the medical population, and but 14 of the 114 counties had even nominal local societies. It is true that there was a number of district-societies overlapping each other in every direction, but in most of them the active membership was small, the meetings infrequent, and neither they nor the state body could claim to be representative of the profession, and they did not exert, or seriously attempt to exert, any great influence on its rank and file.

The results of these conditions were reflected in all professional affairs, but were most evident in regard to legislation and its enforcement. Fads and isms sprung up and flourished as they have not been able to do elsewhere, while the ordinary forms of quackery became more firmly entrenched, and were more brazen and blatant than in any other state in the Union, except it be in Illinois.

Within two years after the adoption of the new plan of organization the membership in the state association grew to 1,600, 70 county societies had been established, and, on the surface, the progress seemed great. On investigation, however, it was found that most of these societies had little existence except on paper, that few of the officers and councilors appreciated the responsibilities of their positions, the feeling seeming to be general that in some way the scheme would work itself out without special effort on the part of these leaders. It is true that the president, secretary, chairman of the council, and a few of the individual councilors, had done good work in a desultory sort of way, but others had done nothing, and there had been little of the systematic, comprehensive planning and effort which will have to be made before the profession of Missouri is organized.

I have been in no other state where the profession was more responsive to appeals for the new order of things, and with proper effort it would be comparatively easy, within the next few years, to build up real, vital scientific and business organizations which could be made helpful to each member in his everyday work, as is contemplated under the new plan, in almost every county in the state. This will require a careful study and treatment of the conditions in each county by the councilor. In this connection it may not be improper for me to say that the impression was made on me that the initiative of the individual councilors was not being relied on and developed here as in other states where the work is being done more successfully. This was well illustrated in the arrangements for the meetings called in my itinerary. The notices were sent from the secretary's office alone, where they should have been at least supplemented by letters from the individual councilors, making him, and he in turn making his county society officers, responsible for the success or failure of the meeting. The association officers, and the council as a body, should do more rather than less, but the execution of their orders should be more and more through the councilors, those being dropped or asked to resign who are not found equal to the tasks set for them. This is what organization means. To bring it all about will require much careful thought and self-sacrificing labor, but Missouri is so ripe for the work, and the returns to its profession and people would be so great, that it is worth all of these and more.

In Kansas City, Sedalia, Jefferson City, and probably other points not visited by me, there are now fairly effective organizations, and good material for similar ones were found almost everywhere. The leaders of the profession impressed me on this trip, as they always have heretofore, as equal to those of any other state or section, and it is urged that they can, should and will unite, and persist in this great work until it is accomplished. It is this hope and belief, and because I know that they will be received in the kindly spirit in which it is done, that these criticisms, which might otherwise seem harsh, are made.

### Iowa.

Second Councilor District.—The convention of physicians of this district was held at Davenport April 25. There was an unusually large attendance and an interesting program was given. It was at first thought advisable to effect a permanent organization for the district and elect officers and formulate a constitution and by-laws, but it was later decided to form no permanent organization, but to allow officers of the county society, who were the hosts, to act as district officers for the session. This, it was thought, will be a more convenient method and will avoid the creation of unnecessary offices.

# *Society Proceedings*

## COMING MEETINGS.

American Medical Association, Portland, Ore, July 11-14, 1905.

American Association of Physicians, Washington, May 16-17.
Arkansas Medical Society, Little Rock, May 16-17.
Illinois State Medical Society, Rock Island, May 16-18.
Missouri State Medical Assn., Excelsior Springs, May 17-18.
Montana State Medical Association, Butte, May 17-18.
Iowa State Medical Society, Des Moines, May 17-19.
New Hampshire Medical Society, Concord, May 18-19.
Medical Society of the State of N. Carolina, Greensboro, May 23-25.
Connecticut Medical Society, Hartford, May 24-25.
North Dakota State Medical Society, Grand Forks, May 24-25.
American Gynecological Society, Niagara Falls, N. Y., May 25-27.
West Virginia State Medical Association, Wheeling, May 24-26.
Arizona Medical Association, Prescott, June 1-2.
Minnesota State Medical Society, St. Paul, June 1-2.
Rhode Island Medical Society, Providence, June 1.
American Laryngological Association, Atlantic City, June 1-3.
American Laryn., Rhin. and Otol. Society, Boston, June 5-7.
American Orthopedic Association, Boston, June 6-8.
Indiana State Medical Association, West Baden, June 7-9.
Maine Medical Association, Portland, June 7-9.
Wisconsin State Medical Society, La Crosse, June 8.
Amer. Assn. of Genito-Urinary Surgeons, Montreal, June 13-14.
Massachusetts Medical Society, Boston, June 13-14.

## MEDICAL SOCIETY OF THE STATE OF CALIFORNIA.

*Thirty-fifth Annual Meeting, held in Riverside,*
*April 18-20, 1905.*

The President, Dr. Frank L. Adams, Oakland, in the Chair.

Dr. William W. Roblee, president of the Riverside Medical Society, delivered an address of welcome. In the presidential address, Dr. Adams congratulated the society on the work that had been accomplished and urged the members to still greater effort.

### The State Board of Health.

The principal address on the second morning was delivered by Dr. Newel K. Foster, Sacramento, secretary of the State Board of Health, on "The Hopes, Disappointments and Successes of the State Board of Health," in which he traced the course of the work of the board and referred especially to the care of consumptives in public institutions, the separation of consumptives from other patients and the open-air treatment.

### Tuberculous Patients a Menace to Los Angeles.

Dr. George H. Kress, Los Angeles, read a paper in which he discussed the question of the tuberculous population of Los Angeles and the question of their menace to the health of those not so afflicted. He analyzed the vital statistics of the city and concluded that, despite the relatively low mortality, the preponderance of deaths from tuberculosis was a grave menace to the health of the city. He suggested as means of neutralizing these dangers, compulsory notification, a new and properly enforced ordinance regarding lodging houses, a municipal dispensary, and the establishment of a sanatorium for incipient cases and of hospitals for patients in advanced stages of the disease.

### Good Reports Received.

The registration at the meeting reached 230, the largest number for several years. The society was reported to be in a very healthy condition; there are now about 1,700 members and almost every county society in the state has increased somewhat in membership during the year.

The committee on arrangements provided an automobile ride and a polo game for the members, a tea and a ride into the foothills for the accompanying ladies, and a banquet at the Glenwood on the evening of April 20, over which Dr. Ernest W. Fleming presided as toastmaster.

### Election of Officers.

The election of officers resulted as follows: President, Dr. Robert F. Rooney, Auburn; vice-presidents, Drs. William W. Roblee, Riverside, and William T. Maupin, Fresno; secretary, Dr. Philip Mills Jones, San Francisco (re-elected); assistant secretaries, Drs. Walter B. Hill, Santa Clara, and Albion W. Hewlett, San Francisco; board of medical examiners, Drs. Abraham L. Cothran, Santa Clara, John C. King, Banning, George F. Reinhardt, Berkley, Dudley Tait, San Francisco, and Frank B. Carpenter, San Francisco; alternates, Drs. George E. Abbott, Pasadena, Ray L. Wilbur, Stanford University, and Andrew M. Henderson, Sacramento; delegates to the American Medical Association, Drs. Philip Mills Jones and Herbert Moffitt, San Francisco; committee on public policy and legislation, Drs. James H. Parkinson, Sacramento, George H. Evans, San Francisco, and H. Bert Ellis, Los Angeles. It was decided to hold the next meeting in Santa Clara.

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## MEDICAL ASSOCIATION OF THE STATE OF ALABAMA.

*Fifty-eighth Annual Meeting, held in Montgomery, April 18, 1905.*

The President, Dr. Capers C. Jones, East Lake, in the Chair.

Dr. Isaac L. Watkins welcomed the association on behalf of the medical profession of Montgomery and Alderman John P. Cone on behalf of the city of Montgomery.

### The Addresses.

In the annual presidential address, the president paid especial attention to tuberculosis, the Walter Reed memorial and the indiscriminate use of patent medicines.

The Jerome Cochrane lecture was delivered by Dr. Robert Abbe, New York City, on "The Problem of Surgery," in which, after a tribute to the late Jerome Cochrane, he sketched the progress of surgery, with especial reference to the qualifications of the successful surgeon and to the modern discoveries which had robbed surgery of many of its former terrors. He stated that the great problems of to-day are septicemia and cancer. In the latter disease, he spoke of the employment of radium, stated that it was potent in curing and arresting the disease, but that the great problem was the development of sufficient radio-energy.

### Symposium on Tuberculosis.

The afternoon session was devoted to tuberculosis, with papers by Dr. Charles L. Minor of Asheville, on "Purposes and Plans of the National Association for the Study and Prevention of Tuberculosis"; Eli R. Smith, of the *Birmingham News*, on "A Layman's View of the Practical Side of Tuberculosis," and Dr. Edgar A. Jones, Raton, N. M., on "Some Essentials to the Successful Treatment of Tuberculosis." Mr. Smith advocated the appointment of a tuberculosis commission in Alabama similar to those established in other states for the study of the disease and the adoption and promulgation of means for its suppression.

The vice-presidents reported the progress of organization in the several counties and stated that during the year the increase in membership of the association has been 78, and that there were at that time 55 illegal practitioners in the state. In the northern district of the state there are still 325 practitioners who are not members of the association.

The papers read at this meeting were of excellent grade and were thoroughly discussed.

### Election of Officers.

Dr. Eugene D. Bondurant, Mobile, was elected president; Dr. Louis W. Johnson, Tuskegee, vice-president; Dr. J. Buckner Killebrew, Mobile, councilor; and Dr. Vivian P. Gaines, Mobile, censor. Birmingham was selected as the next place of meeting.

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## BUFFALO ACADEMY OF MEDICINE.

*Regular Meeting, held March 14, 1905.*

Dr. Allen A. Jones, Chairman, presiding.

### Some of the Newer Problems in Diabetes Mellitus.

Dr. Elliot T. Joslin of Boston, Mass., stated that there have been marked improvements in the treatment of this disease as is proven by the statistics of 172 cases treated in the Massachusetts General Hospital from 1824 to date. The tolerance of diabetics for carbohydrates can be increased by rest, which relieves the body of carbohydrates in food, blood and urine, so removing the carbohydrates from the body. It is just as important to give a diabetic rest as it is to give a gastric ulcer rest. This rest is obtained by a strict diet. Under ordinary conditions if a diabetic takes 100 gms. of bread he will excrete 20 gms. of sugar. If you increase the body tolerance by rest, the same amount of bread will give but 1-2 gms. in the urine. There are several methods by which this rest may be obtained: By restricting the carbohydrates in the food and in severe cases totally excluding the carbohydrates from the food.

If the restricting or diminution of carbohydrates does not diminish the sugar it is advisable to diminish the albumins in the meat. If still the sugar continues, then a vegetable day is urged, when the patient gets spinach, salads containing oil and alcohol. In some cases the sugar still does not decrease and then a starvation day is urged. This regulation of diet can be done only under the strictest supervision in a hospital or sanatorium. The change in diet must be gradual, for a sudden change from a carbohydrate to a starvation day might induce coma, and so when a return to the more liberal diet is made, it must be done gradually for the same reason.

He spoke first of placing the patient on cream, adding it gradually, day by day, until one-half pint is taken. Next the milk cure was mentioned, which was not recommended for all cases. Then the potato cure, which is not so good as the milk cure. The oatmeal cure recommended by von Noorden, which really is not strictly an oatmeal cure but consisted of 250 gms. oatmeal. 100 albumin, and 300 gms. butter, accomplished results in some cases. Suppose the patient is on a carbohydrate free diet, and is taking small quantities of cream, and there is no sugar in the urine, milk may now be added, day by day; later a little grape fruit and fruit can be given. If this does not satisfy, then potato may be added. Fat is essential in the diabetic, but it should be added gradually.

The author does not recommend the use of drugs. Drugs do not increase the body tolerance for carbohydrates, nor do they check the further progress of disease. He uses bicarbonate of soda to counteract the acidosis. When signs of coma appear, such as acetonuria, restlessness, increased thirst, etc., he gives a definite quantity of milk and bicarbonate of soda. If signs of coma increase, more milk and more bicarbonate of soda are added, but it is well not to give too much liquids because of danger of dilatation of the stomach. Give one dram of bicarbonate of soda every hour, and after a few hours diminish the dose; the use of bicarbonate of sodium intravenously in well-marked cases of coma is useless.

### DISCUSSION.

Dr. **Charles G. Stockton** said the use of gluten and gluten bread in diabetics is harmful and is apt to lead us astray. He was glad to have heard of the danger of too suddenly changing from a carbohydrate to a non-carbohydrate diet but has not personally seen the changes referred to. The difficulty in diabetes is that the patient suffers from a carbohydrate hunger, for he can not utilize the carbohydrates taken, and carbohydrates are withdrawn from him. He, therefore, craves starches. Patients do better at one time on one dietary, and not so well at another. One patient will do well on potatoes, another will get worse. His experience with a milk diet and fruits has not been good.

It is true that drugs are useless in diabetes, but we must remember we are not treating the disease alone, but also the patient, and often the patient fares better by using drugs, although the progress of the disease continues. Dr. Stockton has seen patients approaching coma improve under rest, the use of alkalies, and free elimination; but once coma has developed under this treatment they may emerge from it only to sink into it again. There are certain factors which precipitate coma, such as sudden withdrawal of carbohydrates, fatigue, and mental trials.

Dr. **A. L. Benedict** stated that in Buffalo diabetics existed probably in the proportion of 1-10,000. It is essentially a failure to transform the sugars of the body. He has used strontium and the salicylates in the treatment of diabetes.

Dr. **Fridolin Thoma** referred to the hereditary factor, one-third of the cases showing an hereditary tendency, and to the lesions in the pancreas and in the islands of Langerhans. He believes that exercise and fresh air will often diminish the sugar excreted.

Dr. **Thomas G. Allen** uses the salicylate of ammonium, and 1/100 grain of bichlorid of mercury. He believes in baths and moderate exercise.

Dr. **Clowes** believes that the question of diet is of great importance in the treatment of diabetes. Starvation is of importance so far as his chemical analyses have shown and in his examinations he has found that large quantities of proteids are also prejudicial. He called attention to individual idiosyncrasies to different kinds of food, and stated that it was possible to slowly adapt organs to different kinds of food.

Dr. **Edmond Blaauw** recalled the teaching at the University of Amsterdam. He gives diabetics the soft portions of the bread, and never the crust.

Dr. **Allen A. Jones** stated that the treatment of diabetic coma is its prevention. He has never seen a case which did not ultimately die. It is also of value in diabetes to increase the bodily resistance, and for this reason tonics, such as nux vomica, arsenic and the glycerophosphates are of distinct value.

### Care of the Premature Infant.

Dr. **De Witt H. Sherman** reported the results of the incubators at the Children's Hospital. They have had twenty-nine cases, six of which died within twenty-four hours, and ten later. He reviewed the principal points of the lack of development of the premature. He dealt with the treatment under three heads: 1, Maintenance of body temperature; 2, judicious feeding; 3, general care. All the infants were out-patients. Thirteen had subnormal temperatures, 96 degrees or less, and eleven died. One, with a rectal temperature of 94, survived. His statistics showed the necessity of attending to the proper maintenance of temperature immediately after birth in order to prevent shock from chilling. Diluted breast milk is given almost immediately after admission, without apparent ill-effects. The amount is small, the interval short—day and night. Plain breast milk is given as soon as tolerated. Some of the infants were too weak to suckle, and were fed through the nose. Gastric lavage was not used, being too disturbing a procedure. He laid emphasis on pure air of proper humidity; on quiet and freedom from handling; on anointing rather than bathing, except in so far as absolutely essential for cleanliness; on the use of the fewest possible drugs, those used being mild cathartics and stimulants, and beef juice in place of iron.

The smallest infant received weighed 1 pound, 13 ounces. It died. The smallest surviving child weighed 2 pounds, 11 ounces. One babe developed scurvy on breast milk. He claims that a premature infant can develop as well as one born at full term, and that the old notion that a seven months infant is more liable to survive than an eight months infant is groundless. He gives oxygen, and keeps the infant in a moist atmosphere. To overcome the jaundice he gives 1/20 gr. calomel with milk of magnesia.

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## THE AMERICAN CONFEDERATION OF RECIPROCATING, EXAMINING AND LICENSING MEDICAL BOARDS.

*Meeting held at Indianapolis, April 27, 1905.*

The President, Dr. W. A. Spurgeon, in the Chair.

The examining boards of the following states were represented: Ohio, South Carolina, New Mexico, District of Columbia, Wisconsin, Iowa, Kentucky, Indiana, Nebraska and Michigan.

### Report of Committee on Uniform Entrance and Graduation Requirements.

The committee recommend that after July 1, 1905, the confederation shall only recognize such schools and colleges as require for admission, as a minimum, the diploma of a high school or its equivalent in credits, the same to be such number and character of credits as may be recognized by the superintendent of public instruction or by some legally established state examining board of the state in which said college may be situated.

Further, that the graduation requirements shall be a completed medical college course that shall have consisted of at least 4,000 hours, and at least 40 per cent. of said 4,000 hours shall consist of clinical and laboratory work. That no college shall be recognized that falls below this standard 20 per cent. in any one branch or over 10 per cent. in the total; the curriculum of studies to be that adopted by the Association of American Medical Colleges at Chicago April 10.

The report was adopted.

### Report of Committee on Advanced Standing.

This committee reported:

First: That graduates, holding degrees of A.B., B.S., or equivalent qualifications from a reputable college or university may be given credits not exceeding one year; provided, that the curriculum of the college from which the applicant comes provides at least within 10 per cent. of the same hours of instruction in the same several branches as the school to which applicant applies; and, provided, such advanced standing is approved by a certified examiner of the state board of medical examiners in the state in which the medical college is located subsequent to the time that the applicant for time credits satisfied the professors in charge of the various subjects as to his proficiency in the subjects for which he seeks time credits.

Second: That in case of transfer of students from one medical school to another the dean of the recipient institution must secure an official statement from the school from which the student comes as to the latter's educational and moral status.

Third: That no student shall be advanced to a higher class in his own school or any other medical school, who has more than two conditions in his previous year's work, and these conditions must be passed off before the end of the school year on which the student enters. That is to say, that the conditions of the first year must be passed off before the end of the second year, and the conditions of the second year must be passed off before the end of the third year, but no student shall be permitted to enter the fourth year until all conditions of the third year shall have been removed.

The report was adopted.

### Report of the Committee on Uniformity and Scope of Examinations.

The committee recommended the adoption of the following regulation covering examination for license, viz.: That all candidates for license in state board examinations, in addition to other requirements, be required to pass a written examination consisting of one hundred questions, in the following subjects: Anatomy, including histology and embryology, 10 questions; general surgery, 10 questions; materia medica and therapeutics, 10 questions; medicine, 10 questions; obstetrics, 10 questions; pathology and bacteriology, 10 questions; chemistry, 5 questions; etiology and hygiene, 5 questions; physiology, 7 questions; neurology, 3 questions; gynecology, 6 questions; laryngology and rhinology, 2 questions; medical jurisprudence, 2 questions; physical diagnosis, 5 questions; ophthalmology and otology, 3 questions; pediatrics, 2 questions.

That an average of at least 75 per cent. of correct answers shall be required from each candidate.

The report was adopted.

### Report of Committee on Modifications in Reciprocal Qualifications.

For the purpose of establishing medical reciprocity among the states composing it, the confederation agrees to the following propositions as a basis of reciprocal medical registration:

(A) As a prerequisite to reciprocal registration, the applicant therefore shall file in the office of the board of the state of which he is a licentiate such evidence as will enable the said board to certify that he is of good moral and professional character. In connection therewith as evidence of moral and professional character after graduation and licensure, each applicant shall present, from his former home, to the state board in which registration is sought, satisfactory evidence that he has been, for at least one year, a member in good standing of the county, state or national medical organization of the school or system of practice to which he belongs, and a certificate of recommendation issued to him by vote, at a regular meeting of the society in which his membership originated, that he is worthy of registration anywhere, and such certificate of recommendation may be treated as part of such appplication and considered in connection with the other evidence presented.

(B) Each applicant shall be required to furnish in addition to the evidence under (A) an affidavit that in good faith he has abandoned practice in the state from which he came and that it is his intention to become a permanent resident of the state in which such application is made.

(C) A certificate of registration showing that an examination has been made by the proper board of any state, on which an average grade of not less than 75 per cent. was awarded, the holder thereof having been at the time of said examination the legal possessor of a diploma from a medical college in good standing in the state where reciprocal registration is sought, may be accepted, in lieu of examination, as evidence of qualification. Provided, that in case the scope of the said examination was less than that prescribed by the state in which registration is sought, the applicant may be required to submit to a supplemental examination by the board thereof in such subjects as have not been covered, and, provided, that the applicant had been engaged in the reputable practice of medicine at least one year in the state issuing the certificate on which endorsement is sought.

(D) A certificate of registration, or license issued by the proper board of any state, may be accepted as evidence of qualification for reciprocal registration in any other state. Provided, the holder of such certificate had been engaged in the reputable practice of medicine in such state at least one year; and also provided, that the holder thereof was, at the time of such registration, the legal possessor of a diploma issued by a medical college in good standing in the state in which reciprocal registration is sought, and that the date of such diploma was prior to the legal requirement of the examination test in such state.

In qualification A it will be noted that evidence is required which may be furnished easily and without expense by any physician who is a member in good standing in the organizations of the system of practice to which he professes to belong, and, what is probably of still more importance, as quacks are nearly always migratory characters, it requires a character of evidence which they can never furnish.

Qualification B is a necessary safeguard against the abuse of the privileges of reciprocity, especially in the health-resort states, by a class of practitioners who desire to move in and out with the pleasure and health seekers. These requirements put the whole question of reciprocity on such a broad and comprehensive basis, as to seem to put them ultimately within the reach of all of the states.

Dr. Fred. C. Zapffe, secretary of the Association of American Medical Colleges, and Dr. W. J. Means, chairman of its judicial council, addressed the meeting, and suggested that in the future the confederation and the college association could accomplish much good by keeping closely in touch with each other, and by exchanging reports of inspection of colleges. Their suggestions were heartily endorsed by the confederation.

The boards of the following states were added to the membership of the confederation: South Carolina, New Mexico, District of Columbia and North Dakota.

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## NORTHWEST MEDICAL SOCIETY OF PHILADELPHIA.

*Stated Meeting, held March 6, 1905.*

The President, Dr. Arthur P. Hitchens, in the Chair.

### *SYMPOSIUM ON INFLUENZA.*

### Etiology and Diagnosis.

**Dr. G. Morton Illman** stated that the disease was of very ancient record, being mentioned by Hippocrates as far back as 400 B. C., and particularly referred to the epidemics of 1847 and 1889-1890. He contrasted the theory of Pfeiffer, who regards it as due to a bacillus, with others, who say it is due to a toxemia, and expressed the belief that the latter was the result of the bacillus rather than the cause of the infecion. He described the bacillus, and discussed the etiology of the disease in general, as well as its diagnosis.

### Influenza Complicating the Ear and Upper Air Passages.

**Dr. William Hitschler** considered first its relation to the ear, and stated that it might affect either the inner ear or the middle ear, involving either the drum membrane alone or the entire middle ear. It differs from the ordinary otitis media in that in the early stages of the condition there is a marked tendency to hemorrhage, which may be observed as punctate or diffuse ecchymoses on the tympanic membrane, or as bloody vesicles raised from its surface, sometimes extending beyond the confines of the membrane itself and involving the posterior superior wall of the external auditory meatus. The pain is more severe and is more likely to be present on pressure over the mastoid, and the symptoms of the tinnitus, deafness and discharge are intensified. The mastoid is much more likely to be involved than in other conditions, and the external attic is often the subject of purulent inflammation. The diagnosis between this condition and severe simple acute inflammation is very difficult, the prognosis is not as good, and the tendency to chronicity greater. In the upper air passages, in addition to the usual catarrhal signs, there are frequently whitish-gray patches due to necrosis of the larynx and trachea. Hemorrhage, in the shape of nose bleed or hemorrhagic laryngitis, edema of the larynx and pharynx and abscesses of the larynx and thyroid gland have also been observed. The recurrent laryngeal nerve is frequently affected and paresis of the soft palate are among the nervous symptoms. He referred to the tendency to sinus disease in these cases, and also to the fact that many of the cases get well without and many are assisted by appropriate treatment, still there are a certain number which result either in chronic sinusitis, or a transmission of the infective process to the orbital or cranial cavities, sometimes resulting fatally.

### The Prognosis and Treatment.

**Dr. Samuel Wolfe** stated that the prognosis must be considered (1) in relation to life, and (2) as to the liability to complications, on account of the fine field for infection, among the prominent being pneumonia, endocarditis, pericarditis, pleurisy and meningitis. He believed the season of the year has much to do with the complications, winter being particularly favorable to pulmonary involvement, and the summer and fall to gastrointestinal involvement. He stated that each epidemic is liable to have peculiar complications, and believed that the individuality of the patient and management of the case has much to do with the duration of the attack, as well as the sequelæ. Among the complications following the condition, which he considered in detail, were influenzal pneumonia, catarrhal bronchitis, and the neurotic affections, such as neuralgia, hysteria and hypochondriasis. He believed that persons who have once had the disease are more liable to a second attack. The treatment should be directed (1) to the fever; (2) to the pain; (3) to the respiratory symptoms, (4) to the gastrointestinal and nervous symptoms.

### DISCUSSION.

Dr. **Lewis S. Somers** referred to the increase in the number of operations for morbid conditions of the accessory sinuses during the last decade brought about by influenza. This winter he has seen about 15 to 18 cases of frontal sinus involvement, while in the last three or four years involvement of the maxillary antrum seems to be the prevailing condition. He referred to the fact that complications of the upper respiratory tract are comparatively rare in those cases that went to bed immediately at the onset of the condition. In many instances the severe headaches and trifacial neuralgias following influenza are the result of catarrhal conditions of the accessory sinuses, which theory was borne out by the fact that local treatment of these regions often removes the trouble. He did not regard the hemorrhagic form of otitis as peculiarly characteristic of influenza in Philadelphia, and, furthermore, felt that in many instances abnormal conditions of the sinuses were induced by improper douching of the nose.

Dr. **Swithin Chandler** has observed many women with diseases of the tubes who stated that it had started with influenza.

Dr. **Charles Lee Felt** has found very little difference in the middle ear conditions following influenza and other middle ear conditions, except the severity of the disease. He cited several cases following influenza, in which between the attacks the ears were perfectly normal.

Dr. **Frank C. Hammond** has also observed that the pelvic viscera may be influenced during the acute attacks. He had seen three cases, two in single women, both 18 years of age, who on the third day showed marked pelvic involvement. He referred to a case in which there was pain and rapidly increasing leucocytosis in which appendicitis was suspected, but exploratory examination showed the appendix to be *normal*. There was, however, pus in the abdomen, which was evacuated and drainage established. The woman made a good recovery.

Dr. **Samuel P. Gerhard** referred to the selection of the various mucous membranes as the sites of complications attending or following influenza, and dwelt on the importance of producing elimination as quickly as possible.

Dr. **P. K. Schwenck** referred to the fact that the ear complications following influenza are mostly unilateral. He believes that most of the severe headaches are due to sinus complications. He has had very few mastoid operations following influenza, and believes that involvement of this region is more frequently caused by other conditions. He emphasized the importance of rest in bed as a part of the treatment of influenza.

## Therapeutics

[It is the aim of this department to aid the general practitioner by giving practical prescriptions and, in brief, methods of treatment for the diseases seen especially in every-day practice. Proper inquiries concerning general formulae and outlines of treatment are answered in these columns.]

### Ringworm of Scalp.

In considering the treatment of ringworm of the scalp, T. Colcott Fox of London, in *The Practitioner*, states on examination, attention must be directed to any patches on the smooth skin, to a possible involvement of the nails and to the distribution in the scalp.

### CUTTING THE HAIR IN PREPARATION.

The extent of this procedure must depend on the distribution and extent of the diseased areas, the age of the patient and his surroundings. Complete removal of all the hair is most satisfactory to prevent auto-inoculation.

The diseased areas should be marked out, taking care to locate any small commencing spots by painting with iodin or an anilin pencil. A proper inexpensive head covering should be worn night and day and all toilet articles used about the patient must be kept from other children and thoroughly disinfected. Excepting an occasional cleansing, the less the head is washed the better, as it does not assist in the cure and is apt to cause a scattering of the ringworm.

It is recommended by the author that some unirritating parasiticide such as carbolized vaselin or glycerin, be applied to the healthy surface. The use of the tincture of iodin combined as follows is recommended:

℞. Tinct. iodi ............................℥i 30|
Alcoholis (90 per cent.) .............℥iii 90|
M. Sig.: To be applied locally to the scalp as directed three or four times a week.

Iodism seldom occurs, but in children sometimes it may cause restlessness and dreams. Under such circumstances the following may be substituted:

℞. Potass. iodidi
Iodi, āā ...........................gr. iii |20
Aquæ ...............................℥iii 90|
M. Sig.: Apply locally as directed.

He does not recommend long-continued applications of iodin or other chemicals, such as incessant washing with strong soaps, as they are apt to excite desquamation.

### CHOICE OF REMEDIES.

The parasiticide can easily reach the fungus in the epidemic layers or small hairs except where a strong growth of hair exists, there it is difficult to make the preparation penetrate into the follicle sufficiently deep. On this account various methods have been used to assist in the penetration, such as the removal of the oil preliminary to the application of the parasiticide; combining the parasiticide with ether, chloroform, turpentine, glycerin, lanolin, etc.; the continuous application of the remedy under an impermeable head dressing; forcing it in by a special vacuum-producing apparatus and by means of cataphoresis. None of the foregoing methods will insure success, according to the author, in all cases on account of the great difficulty in penetrating to the depths of the follicle and to soak into the hair so as to come in close proximity to the fungus. Only in young children is it possible to effect a cure with a purely parasitic application.

The author mentions the following ointments which are so commonly used but which have not given proper results in his experience:

℞. Ung. acidi salicylici
Ung. sulphuris, āā....................℥ss 15|
M. Sig.: Apply locally; or:

℞. Ung. hydrarg. nitratis..................℥ii 60|
Sulphuris sublim. .........................ʒi 4|
Olei olivæ
Acidi carbol.
Ceræ albæ, āā.........................℥i 30|
M. Ft. unguentum. Sig.: Apply locally.

### EPILATION.

Epilation, according to the writer, sometimes proves an invaluable aid to cure. He recommends a triangular glover's needle lightly coated with croton oil and inserted deeply into the follicles, observing care not to penetrate the skin. By this means the hair is loosened and is easily extracted. He is of the opinion that treatment with *x*-ray must dominate. It is painless and comparatively rapid and the danger of infection to others is overcome. The main obstacle to its use is the prolonged baldness. Setting up a local inflammation by means of drugs limited to the diseased follicles is sometimes used with the disadvantage that great discomfort and sometimes pain is produced, such as the use of strong iodin, formalin, and glacial acetic acid. The following is recommended by some authors:

| | | | |
|---|---|---|---|
| ℞. | Hydrarg. iodidi rubri | gr. iv-xv | 25-1. |
| | Sol. sodii iodidi (1-4) q. s. | | |
| | Spts. chloroformi | ʒii-iv | 8.-15 |
| | Aquæ q. s. ad | ℥i | 30 |

M. Sig.: Apply locally to the diseased areas.

Sheffield's treatment, as mentioned by the author, is as follows:

Apply to the entire scalp by means of a painter's brush once a day for five successive days, the following:

| | | | |
|---|---|---|---|
| ℞. | Acidi carbol. | | |
| | *Olei petrolati, āā* | ℥ii | 60 |
| | *Tinct. iodi* | | |
| | *Olei ricini, āā* | ℥iii | 90 |
| | *Olei Rusci (German) q. s. ad* | *Oi* | *500* |

M. Sig.: Apply once a day for five days.

On the sixth day wipe off with a rag dipped in plain oil. clip the hair again, wash thoroughly with green soap and with soft nail brush remove all scales and loose hair, and on the seventh day reapply the ointment.

When the new hair grows apply for a few days a 10 per cent. sulphur ointment and then the following:

| | | | |
|---|---|---|---|
| ℞. | Resorcin | | |
| | Acidi salicylici, āā | ʒiv | 15 |
| | Alcoholis | ℥iv | 120 |
| | Olei ricini q. s. ad | Oi | 500 |

M. Sig.: Apply locally.

He also mentions Fouli's treatment, which consists in: 1. Rubbing in spirits of turpentine to the patches for several minutes until it hurts. This should be followed by a rub with 10 per cent. carbolic acid soap and then warm water to make a lather. Dry the parts and apply two or three coats of iodin to the patches, and when this has dried, rub carbolized oil (1-20) over the entire head. This treatment should be carried out twice daily.

Chrysarobin is useful and can be applied in any strength desired to excite the proper amount of inflammation in each particular case, but it is criticised by the author as being dirty and stains. Formalin treatment has met with failure in his hands. It is painful and has a tendency to set up eczematous inflammation.

Of all the ointments the following are recommended by the author as capable of setting up the most desirable grade of inflammation without pus formation:

| | | | |
|---|---|---|---|
| ℞. | Cupri oleatis | ʒi-v | 4.-20 |
| | Olei amygdalæ | ʒii-iii | 8.-12 |
| | Adipis lanæ hydros. q. s. ad | ℥i | 30 |

M. Ft. unguentum. Sig.: Apply locally; or:

| | | | |
|---|---|---|---|
| ℞. | Hydrarg. oleatis | ʒii-iiss | 8.-10 |
| | *Adipis lanæ* | ʒss-ii | 2.-8 |
| | Acidi oleici q. s. ad | ℥i | 30 |

M. Ft. unguentum. Sig.: To be applied locally.

The foregoing ointments can be gradually increased and more vigorously applied until the desired results are obtained. Crusts should not be allowed to form.

Pus formation is a drawback and hindrance, and is liable to set up boils and lead to crust formation. In this connection he mentions the salt treatment, using it in equal parts with vaselin or stronger. It frequently excites pustular dermatitis. which is often effective and is of more service than castor oil.

#### *CROTON OIL.*

This is painless, except on inflamed spots, and the author regards it as most certain and effective, but requires care in its use, and must not be placed in inexperienced hands. Aldersmith recommends its use as follows: Rub one drop of croton oil into a patch and prevent its spreading to healthy tissue by surrounding the patch with carbolized lanolin (1 to 8). After four hours apply to the patch a soft, sticky, linseed poultice and cover with a piece of oiled silk. The poultice must remain fixed, otherwise it may cause the croton oil to spread. The following morning the patch should be bathed and all pus removed, followed by a new application of croton oil and poultice. The inflamed surface must be kept clean and free from pus. Keep up the inflammation by these applications until all diseased stumps have fallen out or have been extracted.

Lailler recommends that one drop of croton oil be applied to the spot and all excess removed. If the inflammatory action is severe and vesico-pustules form, he recommends the application of equal parts of tincture of iodin and alcohol (90 per cent.) on the following day to relieve the inflammation and to dry up the pustules. After three days the crusts should be removed by a moist dressing and thick crusts must be prevented. The croton oil should only be applied once in 12 or 15 days. Epilation of the stumps is of great value.

The author recommends the following ointment:

| | | | |
|---|---|---|---|
| ℞. | Olei tiglii | ʒi | 4 |
| | Olei petrolati | ℥i | 30 |

M. Ft. ung. Sig.: Rub in daily or as often as is required to excite the desired degree of inflammation. This state is then maintained until all the diseased stumps are removed or have been epilated; keeping it clean and avoiding crust formation.

### Tinea Tonsurans.

In the treatment of tinea tonsurans of children the *Medical Record* recommends that the hair be cut as close as possible once a week. Every third day the head should be washed with soap and warm water. Morning and evening the scalp should be massaged, triturating the diseased areas vigorously. Following the massage prolonged friction should be applied with the following application:

| | | | |
|---|---|---|---|
| ℞. | Olei ricini | | |
| | Tinct. cantharidis, āā | ʒi | 4 |
| | Spts. camphoræ | ℥iv | 120 |

M. Sig.: To be applied locally to the scalp.

### Phlebitis.

The following combinations are of value in the treatment of phlebitis:

| | | | |
|---|---|---|---|
| ℞. | Plumbi acetatis | gr. xxx | 2 |
| | Tinct. opii | ʒiii | 12 |
| | Aquæ | Oi | 500 |

M. Sig.: Apply locally on gauze to the affected area, or:

| | | | |
|---|---|---|---|
| ℞. | Ung. belladonnæ | ʒvi | 24 |
| | Ung. zinci oxidi | ℥i | 30 |
| | Lanolini | ʒx | 40 |

M. Ft. unguentum. Sig.: Apply locally and wrap the limb in cotton wool.

### Gingivitis (Inflammation of the Gums).

The following combinations are recommended by *Merck's Archives* in the treatment of gingivitis:

| | | | |
|---|---|---|---|
| ℞. | Salol | gr. xv | 1 |
| | Spts. menth. pip. | ʒx | 40 |
| | Tinct, catechu | ʒi | 4 |

M. Sig.: One teaspoonful in half a glass of warm water as a mouth wash; or:

| | | | |
|---|---|---|---|
| ℞. | Acidi carbol. | gr. xx | 1\|30 |
| | Pot. chloratis | gr. xx | 1\|30 |
| | Syrupi simp. | ℥i | 30 |
| | Aq. camphoræ | ℥iii | 90 |

M. Sig.: One dessertspoonful as a mouth wash diluted in half a glass of water.

## *Medicolegal*

**Medical Examination Not Indispensable in Rape Case.**—The Supreme Court of Oklahoma holds, in Harmon vs. Territory, that a medical examination of the prosecutrix is not indispensable to warrant a conviction for the crime of rape.

**Liability to Seaman Not Ended with Voyage.**—The United States District Court, in Massachusetts, says, *in the case of* McCarron vs. Dominion Atlantic Railway Co., *that it can not* believe that the liability of a vessel and owners *for the cure* of an injured seaman is limited absolutely by the *termination* of the voyage; that, if the seaman is seriously *hurt while* anchoring the vessel in the harbor of destination, he *may be* abandoned by the captain without further help.

**Care Incompetent Entitled To—Itemizing Account.**—The Supreme Court of California says, in re *Hayden's* Estate, where the ward was an old lady, paralyzed, helpless *and* needing the care of a nurse at all times, and who had plenty of property to support her, that in such case it was *the* duty of the guardian and of the court to see that she had all the necessary comforts that could be *supplied to* her *in* her last days, even if it had taken the principal *for* such purpose. The court should not have allowed her *to be deprived* of suitable food, nursing. and medical *attendance in* order that the estate left might be larger, or that some distant relative might be benefited. If she was not cared for by another party who had agreed to care for her, and the guardian gave her such care, his account would not be disallowed because such other party had made an agreement to care for her.

As to the contention that some of the charges contained in the guardian's account were not properly itemized, the court says that the only portion of the account called to its attention in the brief was for medical attendance. The items were as follows: "April 25, Dr. Harry, 20 visits, at $2.50, $50.00. September 4: Dr. Arthur, medical services, $70.00." The above charges were sufficiently itemized within the meaning of the statute. They showed the date of payment, the amount, the person to whom paid, and the nature of the services. It is not necessary that a bill of a physician should contain each item that goes to make up the charge. If the amount of the claim is disputed, or if it is denied that the services were rendered, the court on the hearing may go into the particulars.

**Difficult Operation and Loss of Childbearing Power.**—The Supreme Court of Appeals of West Virginia holds, in Normile vs. Wheeling Traction Co., that, in an action for personal injuries, where, as a result of such injuries, a surgical operation is necessary to be performed, evidence which shows or tends to show that such operation is attended with great difficulty and dangers, and that comparatively few physicians perform such operation, is admissible. It says that these facts would increase the expense of securing a physician to do the work, and, this being an element of damages which the plaintiff would be entitled to recover, it would alone make the evidence admissible. Then, again, to show that it was such an operation that but very few physicians would perform would go to show the difficulties attending its performance, and the gravity of it, which would also make the evidence admissible.

Furthermore, the court holds that it is not error to instruct the jury that the loss of childbearing power is an element of damage to be considered by them in an action for personal injuries sustained through the negligence of the defendant, when such loss is the reasonable and probable result of such negligent act. It says that the loss of the power of childbearing is certainly an element of damage to be taken into consideration by the jury, as much so as an injury to any other part of the human body, and the question as to whether or not the injury is the reasonable and probable consequence of the negligent act is a question of fact for the jury. So here it was for them to say whether or not the operation of laparotomy was made necessary by reason of the accident, and, if so, was the loss of childbearing the reasonable and probable consequence of such negligent act.

**Questions and Answers as to Health.**—The Supreme Court of Minnesota says that in the case of Rupert vs. Supreme Court of United Order of Foresters an applicant for life insurance was required to warrant not only her good faith as to her family history, but apart from construction, was made to guaranty opinions as to herself which no candid physician would be likely to assert with positiveness, and to insure against objective conditions which the company's own expert was unable to detect. Invariably, interrogatories of this kind are a medley of conclusions and facts. The answers called for are in part expressions of scientific opinion, and in part narrations of individual experiences. On its face, such an application requires the exact, literal truth as to ailments, the precise nature of which an operation in major surgery might not reveal, and which only an autopsy could discover. The questions are not scientifically arranged, so that the classes of diseases are mutually exclusive. A number of them are but "big bags to put many diseases in." It would require dialectical skill of no mean order to consistently interpret, and technical knowledge of no considerable extent to accurately answer, all that is thereby required. When the questions propounded to an applicant are in such terms as to include trivial ailments and injuries, unconnected with any specific disease, they should be interpreted as referring only to such ailments and injuries as affect the risk to be assumed, unless by express terms they preclude such interpretation. Answers which are purely expressions of opinion are warranties of the bona fide belief and judgment of the applicant. Questions concerning the physical condition of the applicant, or anything that tends to shorten his life, do not invariably require absolute truth in answering. An answer to a question concerning previous consultations of physicians which admits one examination, and omits others clearly proved, but does not purport to be a full and complete reply to all questions in that connection, and is accepted in its obviously incomplete form, is not affirmatively shown to have been false, so as to prevent recovery on the policy.

**Hypnotism and Qualification of Expert Witnesses.**—The Supreme Court of Iowa says that the connection of hypnotism with the case of State vs. Donovan, a prosecution for seduction, was merely a matter of evidence. It says that, according to the story of the prosecutrix, the defendant claimed to control her movements by what he termed "suggestions," and exercised hypnotic influence over her at different times. To prove his power in this direction and its nature, the trial court received, over objection, evidence of instances where he had operated on other subjects, and of the control exerted over them. This court knows of no other way by which such proof could have been made. The evidence was admissible. Again, the Supreme Court says that the jury were instructed to take into consideration, in connection with other evidence, "the testimony relating to the exercise or attempted exercise of hypnotic influence." This was proper, for, regardless of whether such influence was in fact exercised, the evidence tended to show that he was pretending to exert it on her, and thereby having some effect on her mind. Whether exercised by the accused, or only pretended was not very important, if in either event it was resorted to as a scheme or artifice to procure the debauch of the prosecutrix. Two physicians were called, and, as tending to establish their qualification to testify as experts on the use of hypnotism as an anesthetic stated—the one, that he was the superintendent of an insane hospital; had not made an extensive study of the subject, but knew, to a certain extent, what modern authorities said on the subject; had never practiced hypnotism, but had witnessed experiments by others; and the other, that he had made some study of the subject; had practiced it somewhat, and knew a few of the works recognized as standard authorities, but had never attended a school teaching hypnotism; there being but one in existence, located in France. The Supreme Court holds that there was no error in overruling an objection to their competency. It says that the inquiry related to matters connected with the profession of the witnesses, and, in order to testify concerning the same, they were not required to have derived their knowledge from actual experience or observation. Experts, as every one knows, obtain much of what they know from books, and may express opinions based thereon as well as on experience. Whether a person may testify does not depend on any well-defined standard by which his qualification to speak shall be measured. He should always possess such a degree of knowledge or skill as to enable him to speak intelligently on the subject, and, beyond this, in passing on the preliminary proof, much must of necessity be left to the discretion of the trial judge. These witnesses had studied the subject in different authorities, and were able to say from their investigation that surgical operations may be performed on patients in the hypnotic state; having been previously informed of what would be done, and that no pain would result.

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# *Current Medical Literature*

## AMERICAN.

Titles marked with an asterisk (*) are abstracted below.

### American Medicine, Philadelphia.

*April 29.*

1 *Adaptation and Tuberculosis. J. G. Adami, Montreal, Canada.
2 *Biliary Drainage in Operations on the Gall Bladder and Biliary Ducts. E. A. Smith, Buffalo, N. Y.
3 *Case of Fatal Chorea, Apparently from Excessive Muscular Action. J. P. C. Griffith, Philadelphia.
4 **Method of* Uniting Intestines of Very Small or of Unequal Caliber. J. S. Horsley, Richmond, Va.
5 Briefs on Genitourinary Surgery. G. F. Lydston, Chicago.
6 *Intra-abdominal Anastomosis. A. Groves.
7 Pathogenesis of Lead Intoxication, Apropos of the Pathologic Findings in a Case. A. Gordon, Philadelphia.

1. **Adaptation and Tuberculosis.**—Adami emphasizes the fact that in infectious diseases in general, while the bacteria grow more particularly in one organ or tissue, the successful counteraction of the disease is not a local matter. The counteraction is by the rest of the organism; in part by the leucocytes developed in the bone marrow and elsewhere, in part by other tissues, which discharge into the blood diffusible antitoxic and bactericidal substances. He calls attention particularly to the recent observations of Wright and Douglas on the phagocytic activity of the leucocytes. These substances appear to be developed apart from the leucocytes, that is to say, by other tissues of the body. Applying these considerations to tuberculosis, he points out that when the tubercle bacilli grow locally, there is a slow diffusion out of their toxins, and it is by the adaption of the rest of the tissues to these toxins that the leucocytes and these other tissues become accustomed to produce diffusible antibacterial substances. In favorable cases these are present in amounts so considerable that the local growth of the tubercle bacilli is arrested and healing ensues. Postmortem observations show that this arrest is the rule rather than the exception. Applying these considerations to the treatment of tuberculosis, he shows, first, that the tuberculin treatment is but an attempt to carry out the natural process; that tuberculin is merely a concentrated extract of the toxins of the bacilli, and that these now are injected into the organism at a distance from the site of local growth of the bacilli. Their action must be to stimulate the cells of the rest of the organism, and to produce increased amounts of antibacterial substances. The cells, however, may be in a state of low vitality so that they do not react, and hence this treatment is by no means constantly successful. Modern treatment similarly, is a carrying forward of the same idea. The disease as such is left severely alone, every attempt is made to improve the general tone of the organism by rest, good food, and fresh air. The cells gain improved tone and respond to the toxins, producing increased quantities of the antitoxic and antibacterial substances. Here, again, it is the body as a whole and not the local reaction that brings about arrest of the tuberculous process. The adaptive processes on the part of the bacilli are next considered. They also are capable of being modified according to alterations in their environment so that by passage they are found to adapt themselves more and more to the organism of any particular species. By passage through the organism of one species, the bacilli become more and more virulent for that species and thus may become less and less adapted to growing the organism of another species. Adami is of the opinion that this is the case in general, and with tubercle bacilli grown in the human and bovine organisms, respectively, in particular.

2. **Biliary Drainage in Operations on Gall Bladder and Biliary Ducts.**—Smith says that biliary drainage, in the majority of cases, is best carried out by cholecystostomy, which is easier and safer than cholecystectomy. The latter is indicated for stricture of the cystic duct, in cases with thickened, distorted, perforated or gangrenous gall bladder, and when malignancy is suspected or found. Cholecystectomy should be accompanied by drainage of the cystic duct below the point of removal of the gall bladder. Patients suffering from the toxemia of cholemia long continued, should be offered exploratory operation and biliary drainage by cholecystostomy or cholecystenterostomy. Obstruction of the common duct by stricture and chronic pancreatitis may be treated with good hope of cure by this procedure, and in malignancy life is prolonged with comfort. The author describes at some length the technic of his operative work.

3. **Fatal Chorea Apparently from Excessive Muscular Action.**—Griffith reports an instance occurring in a boy 11 years of age. The child had had an attack of chorea two years before. The cause of the second attack was not known. A month before, he commenced to show restlessness, which advanced to choreic movements and grimaces. For a week the movements had been excessive. On admission to the hospital nothing abnormal could be found in the organs, except the presence of a systolic murmur in the mitral area. The boy could not speak, although he seemed to understand perfectly. The movements were so excessive that the child was thrown violently about the bed, and was bruised all over. Sleep was almost absent. Hyoscin hydrobromate given hypodermically relieved the condition to a certain extent, morphin, potassium bromid and chloral hydrate having been entirely ineffective. The excessive movements continued and exhaustion finally ensued, and death. The autopsy showed the presence of an endocarditis with micro-organisms in the heart muscle and in the mitral leaflets. While it can not be affirmed positively that death did not follow from endocarditis, yet the case bore all the evidences of death from exhaustion, the result of the enormous muscular activity.

4. See abstract in The Journal, Jan. 7, 1905, p. 58.

6. **Intra-abdominal Anastomosis.**—Groves advises the use of McGraw method, using silk instead of rubber ligatures, and is opposed to the use of antiseptics. The abdominal wound should be closed by the layer method. He urges drainage of the stomach by gastrojejunostomy in cases of gastric ulcer, irremovable pyloric cancer, dilated or displaced stomach, and believes that many cases of dyspepsia and so-called neurosis of the stomach can be cured by drainage. He contends that there are no functional, neurasthenic or neuralgic diseases, but holds that all diseases have an organic cause which usually can be found and often removed. Attention is directed to eyestrain as a commonly overlooked cause of intraabdominal derangements.

### Medical Record, New York.

*April 29.*

8 *Multiple Myeloma (Kakler's Disease). J. Collins, New York.
9 *Let the Lungs Alone in Consumption. W. Hutchinson, Portland, Ore.
10 *Aerophagia and Flatulence. C. D. Spivak, Denver, Colo.
11 *Conduct of the Perineal Stage in Normal Labor. B. A. Fedde, Brooklyn, N. Y.
12 Case of Premature Separation of a Normally Situated Placenta. J. W. Robinson, Chicago.
13 Presentation of the Portrait of Dr. Fessenden Nott Otis to the Academy of Medicine of New York. L. B. Bangs, New York.

8. **Multiple Myeloma.**—For the purpose of showing that the occurrence of albumose in the urine is not pathognomonic of this affection, Collins cites a case in which repeated examinations of the urine failed to show albumose. A further point of interest in the anatomic side of the case was the extensiveness of the new growth, invading all the bones of the skeleton without the slightest indication of metastasis, although the disease had existed for over two years. Certain clinical features of the case are worthy of emphasis. In the first place, there was no deformity or alteration in the contour of the bones to be made out during life. Despite the fact that the substance of the bone was so largely replaced by new growth, and the existence of rarefying osteitis to a high degree, there were no indications that there had ever been fractures or dislocations. In the second place, the urine failed to show the albumose, as has already been mentioned.

9. **Let the Lungs Alone in Consumption.**—The reasons advanced by Hutchinson for letting the lungs alone in the treatment of consumption are: 1. Consumption, properly speaking, is not a disease of the lungs, but merely a local (pulmonary) expression of a disease which involves the entire system. 2. The lungs are practically beyond the reach of any known remedy. 3. In the vast majority of cases, so-called pulmonary gymnastics and the demands made by them on the lungs to expand beyond their natural limit, as is done in most methods where the air tension is artifically increased, as by breathing out against resistance, simply drive the infectious material into hitherto uninvaded areas of the lungs.

10. **Aerophagia and Flatulence.**—From a study of the literature and of his own cases, Spivak has arrived at the following conclusions: Swallowing of air in small quantities is a normal phenomenon. Abnormal swallowing of air may be voluntary (hysteria), and involuntary (dyspepsia, idiopathic). Air may enter the stomach by swallowing, aspiration, or gulping. Cases of aerophagia are not as rare as earlier writers used to think. Although this condition, as a rule, is a sequel to some other affection, yet when it is let alone it may, in its turn, produce grave symptoms and undermine the health. Aerophagia, tympanites, nervous eruptation,

pneumatosis, and merycism have an etiologic relationship. The best treatment in voluntary aerophagia is to impress the patient with the fact that he can stop it, if he will.

11. **Conduct of Perineal Stage in Normal Labor.**—Fedde describes a method devised by Dr. A. B. Davis to be employed in forceps cases. It consists in aresting the progress of the head by direct pressure when the biparietal diameter has passed the ischiopubic rami and before it has reached the rima pudendi; then, by gentle manipulations with the other hand—thumb and fingers on the opposite side of the vulva—slipping the labia first over the parietal eminences, then backward over the forehead and face without allowing the head to extend until it is fully delivered. By pressure back of the anus with the hypothenar eminence, the head meanwhile is maintained in flexion close under the pubis. In practice one receives the impression that tension actually diminishes with the progress of delivery. Chloroform is given during pains in the latter part of the second stage. When the head begins to distend the vulva, the patient is turned on her side with a pillow between the knees. Just before delivery, when the parietal eminences have passed the pubic rami, the chloroform is pushed to the point of cessation of pains, the head is steadied, and the vulva is slipped over the parietal eminences and the face, as described. Chloroform is then withdrawn, and the delivery is completed in the dorsal position.

### Medical News, New York.

*April 29.*

14 Protest Against Radiologic Misinformation. H. G. Piffard, New York.
15 *Intramuscular Injections of Insoluble Preparations of Mercury in Syphilis. H. G. Klotz, New York.
16 Case of Syphilitic Pseudoparalysis. J. Sobel, New York.
17 *Two Cases of Gastrostomy with Examination of Stomach Walls by Means of the Cystoscope. R. E. Pick, New York.
18 *Continuous Current in Relation to Inflammatory Exudates. M. A. Cleaves, New York.
19 Rheumatism and the Eye Muscles. F. Valk, New York.

15. **Intramuscular Injections of Insoluble Mercury Preparations in Syphilis.**—Klotz repudiates the claims made by some enthusiasts that insoluble injections are likely to effect an entire and permanent cure of syphilis in the shortest time and with the minimum amount of mercury. He believes that in the insoluble injections we possess one of the most effective methods of bringing the organism infected with syphilis under the influence of mercury, a method, however, destined to supplement rather than to exclude other older methods. Up to the end of 1904 he has records of 2,500 injections made on 204 patients; 2,112 of the salicylate, 150 of the yellow oxid, 216 of calomel, and 3 of gray oil. The age of the patients ranged from 18 to 60 years. The number of injections varied from 1 to 42, sometimes distributed over three and four years. The usual dose was the entire contents of a syringe measuring exactly 1 c.c., representing 10 cgms. (one grain and a half) of the salt suspended in oil or liquid vaselin. The injections were given at intervals of one week, whenever symptoms of syphilis were present, up to their disappearance; then 2 to 4 injections were added at intervals of 10 to 14 days. Ordinarily not more than 10 injections were given continuously except when the intervals had been longer. Such a series was followed by an intermission of several months without any treatment, so that patients who were more or less exclusively treated by injections received 4 to 6 series of from 6 to 8 injections up to about the end of the second year. Under ordinary conditions this was considered sufficient treatment. So-called regular cases during the first two years are hardly available for any definite judgment of the value of a treatment, because a similar course of the disease may be observed with every method, and even occasionally without any treatment at all. In quite a number of the cases other methods were freely alternated with the insoluble injections. An intermission of several weeks or months, with iodids or quinin and other tonics, will render the patient better prepared for the renewal of mercurial treatment. In 129 cases the injections were made in the first two years after infection; in 15 in the third year; in 18 in the fourth and fifth years; in 22 between five and ten years; in 11 between between 10 and 15 years; in 4 between 20 and 30 years; in 9 the term of infection could not be ascertained. The manifestations which were the objects of treatment in these cases were periostitis, 3; gummata of extensor muscles of thigh, 1; gumma of scalp, 1; of lip, 2; lip and tongue, 4; gummatous processes of nose and palate, 6; in diffuse superficial ulcers of pharynx and palate, 3; tubercular syphilide, 13; gummatous ulcers of leg, 6, and of other regions, 4; gumma of the testicle, 2; cerebral syphilis 4. No pain results from the injection itself, if properly made, nor is there any flush around the needle puncture, nor inflammation of the skin. Patients with flat nates, flabby muscles and skin are not favorable subjects for the injections. The salicylate is the best salt to use. Abscess formation results but rarely, only 4 instances occurring in the 2,500 injections. The constitutional symptoms following the injections are slight and of short duration. The patient can attend to his business without inconvenience.

17. **Cystoscopy of Stomach.**—Pick reports two cases to show the value of this method of examination of the stomach. The patient does not eat any food for 6 hours preceding the examination, in the meantime washing his stomach thoroughly until the water returns absolutely clear; then his stomach is filled with water, and, with the patient lying flat on his back, the cystoscope is introduced. The paper is illustrated with photos of the interior of the stomach showing both the cardiac and the pyloric openings.

18. **Continuous Current in Relation to Inflammatory Exudates.**—Cleaves reports 7 cases showing the efficacy of the continuous current for dispelling inflammatory exudates.

### Boston Medical and Surgical Journal.

*April 27.*

20 *Stricture of the Rectum: A Plastic Operation for the Relief of Certain Varieties. H. A. Lothrop, Boston.
21 *Chronic Gonorrheal Prostatitis. C. G. Cumston, Boston.
22 Employment of the Blind for Massage. N. B. Potter, New York.
23 Chronic Bronchitis in the Adult as Influenced by a Change of Climate. E. O. Otis, Boston.
24 Evolution and Tuberculosis. J. B. Huber, New York.

20. **Rectoplasty.**—A case of stricture of the rectum is cited by Lothrop for the purpose of describing an operation performed with a technic differing from any previously published. Under ether anesthesia, the sphincter ani muscles were dilated so as to cause temporary paralysis. A curved incision about three inches long, anterior to the anus and extending transversely across the perineum, was made. It was concave anteriorly and the extremities were near the openings of the ducts of Bartholin's glands. As in the operation for posterior colporrhaphy by the Tait method, the vaginal wall was dissected forward and upward for a distance of about three inches so as to expose the anterior wall of the rectum. The hemorrhage was very moderate. A steel bougie-aboule (French No. 18) was passed through the stricture and the tip could be felt through the rectal wall in front, thus giving an idea of the extent of the cicatricial mass. While the tip of this bougie was still above the stricture, it was directed so as to press the rectal wall into the wound. With a knife this tip was cut down on and the incision enlarged vertically one and one-half inches, so that the rectum above the stricture could be explored. Examination showed a uniform, circular constricting mass of fibrous tissue about three-quarters of an inch thick, forming a sort of diaphragm horizontaly across the lower portion of the rectum. The opening was situated in the anterior portion of the diaphragm. The bougie was not removed, but bent down in the form of a hook for the purpose of exerting traction. The vertical incision was then continued downward through the stricture, making a cut about two and one-half inches long. The margin of the stricture was slightly ulcerated. There was no sign of malignant disease, and the cicatricial tissue seemed to involve all the layers of the rectum. Working through this vertical incision, a second vertical incision, about two inches long, was made in the median line of the posterior wall of the rectum through the stricture. The rectal wall in the vicinity of this incision was freed. The upper and lower extremities of this posterior vertical incision were easily approximated so that the incision could be closed horizontally by the application of five sutures of No. 1 chromicized catgut. After this the anterior incision was closed in a similar manner in a horizontal plane. No feces appeared in

the rectum during these manipulations. From time to time the wound was irrigated with a warm saline solution. The rectum having been shut off from the perineal wound, this was closed as in the Tait method, first burying a continuous strand of chromicized catgut for the deeper regions. The external wound was then closed with six silkworm-gut sutures. On completion of the operation the caliber of the rectum at the site of stricture readily admitted three fingers. A rectal plug, four inches long, made by binding together three rubber drainage tubes with iodoform gauze and covering the whole with rubber dam, was inserted. The operation wound was such that no recto-vaginal fistula could follow, but, if the wound had suppurated, only what would correspond to a fistula in ano would have resulted. The operation lasted about one hour, and the patient rallied well. After operation the patient suffered no particular discomfort. The diet consisted of liquids, without milk, for two or three days, and this was increased gradually so that about eight days after operation the patient was on full diet. The rectal plug was removed on the fourth day, and the rectum irrigated with a warm boric acid solution. The small rubber tube was left in the rectum for a few days longer. On the fourteenth day the silkworm-gut sutures were removed. There was no swelling about the vulva or rectum. The stitches held perfectly and the wound healed without complication. Digital examination showed plainly two horizontal lines of sutures in the rectum. The bowels were kept quiet for one week, at the end of which time an oil enema was given, followed two hours later by a suds enema. After that date the patient was given regularly 10 minims of fluid extract of cascara, three times a day. This served to keep the bowels regular. Patient had complete control of the sphincter muscles and the formed movements were normal in size, a circumstance which had not obtained for a number of years. Patient had left the hospital about four weeks after entrance. Thirteen months after operation the patient is in excellent general health and suffers no local discomfort of any sort.

21. **Chronic Gonorrheal Prostatitis.**—The principal points in the treatment outlined by Cumston may be summed up as follows: First, dilate the strictures, especially those seated in the membranous urethra, proceding with delicacy so as never to cause hemorrhage. Second, rectal massage of the prostate for from three to five minutes. Third, have the patient urinate to wash out the prostatic urethra and thus to remove the secretions that the massage has caused to accumulate there. This is sufficient and is preferable to large irrigations of potassium permanganate which are dirty and often produce useless traumatisms. Fourth, instil 1 c.c. or 2 c.c. of a solution of silver nitrate (1 to 100 for the first few times and rapidly arriving at 1 to 50) into the prostatic urethra. The treatment should be carried out every other day, and the length of time that it must be kept up varies considerably, but, as a rule a cure can be accomplished in less than six or seven weeks. The results Cumston has obtained have been, on the whole, excellent, and 27 of the 32 cases thus treated have been absolutely cured. They have been closely followed for periods varying from eighth months to four years after all treatment had been stopped, and have been submitted on several occasions to the beer test, which has always remained negative.

### New York Medical Journal, New York.

*April 29.*

25 *Nephropexy, pro and con. A. E. Gallant, New York.
26 *Gallstone Disease; Remote Effects and Treatment. S. P. Gerhard, Philadelphia.
27 Contribution to the Plastic Surgery of the Urethra. G. F. Lydston, Chicago.
28 Inflammation of the Glands of Bartholin. C. C. Miller, Chicago.
29 Problem of Exterminating Mosquitoes; Discovery of Inaccessible Breeding Places. H. A. Eberle, Greensboro, S. C.
30 Primary Epithelioma of the Uvula, with Report of a Case Where Recurrence Took Place After Two Operations for Removal. H. Smith, New York.
31 Infection Through the Tonsils. W. S. Anderson, Detroit, Mich.
32 Modern Motherhood. T. Bannan, Syracuse, N. Y.

25. **Nephropexy.**—Gallant discusses the pros and cons of the performance of nephropexy. He says that the majority of clinicians now accept Glenard's theory that the movable kidney is merely an incident in the general ptosis, and symptoms referred to the kidney are much more likely to be the result of intestinal displacement, as is also the case in troubles caused by deformity or abnormal mobility of the spleen, liver or kidney, and dilatation of the stomach, and as the symptoms due to kidney mobility (Dietl's crises, with hydronephrosis, jaundice, or hematuria) can be differentiated by their acuteness, recurrence, and subsidence when the patient has been placed in the inclined dorsal position, and the kidney replaced; and, per contra, as the evidences of gastrointestinal displacement and disorders (gastritis, constipation, malnutrition, nervous instability, splashing sound, and distorted abdominal outline) are notable for their chronicity and rebelliousness to treatment, that nephropexy is justifiable on a displaced kidney after operation thereon, involving it or its pelvis or ureter, or to relieve hydronephrosis or hematuria from a non-replaceable kidney. Hepatopexy, splenectomy, gastroplication, gastrojejunostomy, and suture of the recti may occasionally be indicated. The main obstacle to nephropexy in women lies in the greater obliquity of the lower ribs, which prevent suturing the kidney high enough to avoid harmful compression by the ordinary corset and waistbands. Nephropexy is unjustifiable when, in order to place the sutures, it is necessary to drag the kidney farther down. Nephropexy may relieve the symptoms due to kidney mobility, but in order to overcome those caused by the general ptoses it has been necessary to adopt a new principle, viz., (a) gravity replacement by the *semiopisthotonos posture; (b) support of the replaced viscera* by a corset made to order from measurements taken while the woman is lying down, laced with two strings, inserted from above down, put on while in the inclined dorsal posture, and fastened in front from below upward. By this method the viscera can not prolapse while the corset is worn, and with this support nephropexy for replacing kidney, *per se*, is but rarely indicated, multiple operations can be avoided, and the patient can be placed under curable conditions.

26.—See abstract in The Journal, Feb. 18, 1905, page 571.

### Lancet-Clinic, Cincinnati.

*April 29.*

33 *Piroplasmosis Hominis. P. M. Ashburn, Missoula, Mont.
34 Dermatologic Malingering. M. L. Heidingsfeld, Cincinnati.

33. **Piroplasmosis Hominis.**—Ashburn's article is a rearrangement of a report submitted to the Surgeon General of the Army, in July, 1904, and read before the Cincinnati Academy of Medicine in October of the same year, but not printed. It embraces all cases of "spotted fever" occurring in the Bitter Root Valley and the vicinity of Missoula, Montana, in 1904, and the conclusions drawn from their study.

### St. Louis Medical Review, St. Louis, Mo.

*April 22.*

35 Gonorrheal Rheumatism. G. F. Lydston, Chicago.
36 Contribution to the Etiology of Nervous Affections. T. H. Evans, Philadelphia.

### Interstate Medical Journal, St. Louis.

*April.*

37 Review of Methylene Blue Eosin Blood Stain; Report of Some Modifications in Method of Preparation. G. C. Crandall, St. Louis.
38 Amputation Neuromata; Report of Three Cases. T. H. Manley, New York.
39 Indifference to Diagnosis One of the Dangers of Modern Surgery. J. Block, Kansas City.

### California State Journal of Medicine, San Francisco.

*April.*

40 Consideration of Congenital Dislocation of the Hip. H. M. Sherman, San Francisco.
41 Report on an Epidemic of Diphtheria. R. L. Wilbur, Stanford University.
42 Postoperative Ventral Hernia—Its Causes and Prevention. C. G. Bull, Alameda.
43 Etiology of Locomotor Ataxia. J. O. Hirschfelder, San Francisco.
44 Acute Delirium. H. E. Sanderson, Stockton.
45 Uncinariasis; Report of Seven Cases. H. Gunn, San Francisco.

### Archives of Otology, New York.

*April.*

46 Distribution of Blood Vessels in the Labyrinth of the Ear of the Sheep and the Calf. G. E. Shambaugh, Chicago.
47 Anatomy of the Child's Ear, Emphasizing *Points of Practical Importance.* W. S. Bryant, New York.
48 The Pathology of the Infant's Ear Underlying Aural and General Disease. J. A. Kenefick, New York.
49 Otitis Media in Children. A. Jacobi, New York.
50 Operative Treatment of Diseases of the Ear in Childhood. E. B. Dench, New York.

### Brooklyn Medical Journal.

*April.*

51 High Rectal Cancer. C. Jewett.
52 Cardiac Status in Renal Disease. J. M. Van Cott.
53 Report of Present Condition of Cases Operated on for Congenital Dislocation of Hip. C. D. Napier.
54 Conservatism and Radicalism in the Practice of Medicine. E. E. Cornwall.
55 Case of Epithelioma of External Auditory Canal, Tympanic Cavity and Mastoid. B. C. Collins.
56 Elephantiasis of the Scrotum. W. F. Campbell.
57 Case of Hysterical Aphasia and Paralysis. L. G. Kerr.

### Memphis Medical Monthly.

*April.*

58 Greatly Increased Frequency of the Occurrence of Abortion, as Shown by Reports from Memphis Physicians. J. L. Andrews, Memphis.
59 Cholelithiasis. J. A. Crisler, Memphis.
60 Pyelitis. M. Goltman, Memphis.
61 Mitral and Aortic Incompetency, with Special Reference to Therapeusis. R. N. Greene, Greenville, Fla.
62 Pleurisy Complicating Pneumonia. O. S. McCown, Memphis.
63 Cesarean Section Complicated by Rupture of the Uterus; Recovery of Mother and Delivery of Living Child. B. C. McMahon, New York City.

### Iowa Medical Journal, Des Moines, Iowa.

*April 15.*

64 Introduction of Soft Rubber Tube in Intestine Through the Stomach for Medical and Surgical Purposes. W. J. Latta, Des Moines.
65 Treatment of Diphtheria. E. F. Cowger, Riverton.
66 Physician's Duty. C. A. Boice, Washington, Iowa.
67 Emphysema. W. W. Hunter, Monticello.
68 Use of a Solution of Adrenalin Chlorid in Oil in the Acute Forms of Rhinitis and Laryngitis. J. M. Brown, Chicago.

### Archives of Pediatrics, New York.

*April.*

69 Work of the Babies' Wards of the New York Postgraduate Hospital for Convalescent Children. H. D. Chapin, New York.
70 Primary Adenosarcoma of the Liver in a Child of Nine Months. L. E. Holt, New York.
71 Congenital Obliteration of the Bile Ducts. J. P. C. Griffith, Philadelphia.
72 Sclerema Neonatorum; Report of a Case with Complete Recovery. J. Sobel, New York.
73 Errors in Diet as a Cause of Infantile Diarrhea. St. G. T. Grinnan, Richmond.

### Wisconsin Medical Journal, Milwaukee.

*April.*

74 "Radio-Activity." The Therapeutic Result We May Expect at Its Present Stage of Development. William Sickles, Milwaukee.
75 Complete Diagnosis. E. Evans, La Crosse.
76 Anatomic Anomalies Encountered in Abdominal Operations. H. Reineking, Milwaukee.
77 Remarks on Pneumonia. F. W. Epley, New Richmond, Wis.
78 General Practice in Northern Wisconsin. J. P. Cox, Spooner, Wis.

### Journal of Medicine and Science, Portland, Me.

*April.*

79 Thermometers and the Measurement of Temperature. A. L. Clark.
80 Weather Forecasting. H. I. Allen.
81 Panama Canal Mismanagement. C. A. L. Reed.

### Canadian Journal of Medicine and Surgery, Toronto.

*May.*

82 Treatment of Tuberculosis in Ontario. J. H. Elliott, Gravenhurst, Ontario.
83 Case of Multiple Sebaceous Cysts. A. McPhedran, Toronto.

### Medical Fortnightly, St. Louis.

*April 25.*

84 Why Quackery Thrives. R. W. Wilcox, New York.
85 Duty of the Medical Expert to the Individual and to the State. R. B. H. Gradwohl, St. Louis.
86 Relation of Man to Nature (a Study Prompted by "Testimonies of the Sepulchres"). A. S. Ashmead, New York.
87 Anatomic Eponyms. R. S. Gregg, Chicago.

### Virginia Medical Semi-Monthly, Richmond, Va.

*April 21.*

88 Case of Extensive Embolic Gangrene: With Remarks on the Indications for Multiple Amputations of the Extremities. M. H. Richardson, Boston, Mass.
89 Immediate Repair of Lacerations of Cervix. E. McGuire, Richmond, Va.
90 Circumcision—Its Technique, Anesthesia, Operation, After-Treatment and Report of Cases. E. A. Timmons, Columbia, Tenn.
91 Asthma. J. G. Nelson, Richmond, Va.
92 Case of Multiple Perforations of Stomach, Mesentery and Intestines, with Recovery. J. E. Cannaday, Paint Creek, W. Va.
93 Contract Doctor. G. A. Hogan, Bessemer, Ala.

### Dominion Medical Monthly, Toronto.

*April.*

94 Cocaine Anesthesia. I. Olmsted, Hamilton, Ontario.
95 Lympho-Sarcoma. B. Milner.
96 Case of Hysterectomy for Fibroid of the Uterus; Recovery. A. L. Smith, Montreal.

### New Orleans Medical and Surgical Journal.

*May.*

97 Plasmodium Malariæ Outside the Body of Man. C. D. Simmons, Baton Rouge, La.
98 Salient Points in the Morbid Psychology of Maniacal States. E. M. Hummel, Jackson, La.
99 Influenza: Complications, Sequelæ and Treatment. B. O. LeBlanc, St. Gabriel, La.
100 Beta-Naphthol in Uncinariasis. E. M. Dupaquier.
101 Case of Hysterical Arthralgia or Brodie's Joint. F. W. Parham.

### Woman's Medical Journal, Toledo, Ohio.

*April.*

102 Exencephalus; Report of Case. M. M. S. Johnstone, Chicago.
103 "The Woman Physician." L. H. Branson.
104 Case of Achondroplasis and One of Sublingual Tumor in Baby of Eleven Months. H. Michael, Chicago.

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## FOREIGN.

Titles marked with an asterisk (*) are abstracted below. Clinical lectures, single case reports and trials of new drugs and artificial foods are omitted unless of exceptional general interest.

### British Medical Journal.

*April 15.*

1 *Treatment of Empyema. J. H. Pringle, Glasgow.
2 Contribution to the Treatment of Chronic Empyema. O. Grunbaum, London.
3 *Iron Acetate in Treatment of Pneumonia. H. J. Robson, Leeds.
4 New Methods of Studying Affections of the Heart. J. MacKenzie, Burnley.
5 Case of Purulent Pericarditis in an Infant: Operation; Death. J. A. Coutts and R. P. Rowlands, London.
6 Hepatic Factor in Biliousness. F. Hare, Queensland.
7 Closure of Traumatic Defects of the Skull. C. L. Green, Birmingham.

1. **Treatment of Chronic Empyema.**—The treatment advocated by Gruenbaum consists in the application of a negative pressure to the pleural cavity for several hours every day. The development of a negative pressure of 10 to 15 mm. Hg can be easily maintained by inexpensive apparatus. In selecting the pump, it must be remembered that there may be a slight leak at the chest wall, so that it is wise to choose a pump which will remove considerable quantities of air, and not one which is designed to develop a perfect vacuum. For this reason Fischer's filter pump is almost ideal, because the regulation of the negative pressure developed is easily carried out by altering the length of the tube used, and that form of pump requires very little water—less than half a gallon an hour—and thereby gives but little trouble. It would not be wise to connect the pump direct with the empyema, for two reasons—(1) if anything should go wrong with the pump, water would pass into the cavity; (2) if there were much discharge, the pump would become dirty and would refuse to act. A large bottle is connected between the pump and the chest, and this is partially filled with carbolic lotion; by placing the bottle on a higher level than the pump, it is found that even when the water is flowing extremely slowly, respiratory movements do not lead to sufficient alteration in pressure to draw the water into it. A negative pressure of 80 mm. Hg is used in adult cases, and this is accomplished by having a fall of nearly 2 meters. Since the apparatus described above, although possessing the advantage of costing less than ten shillings, nevertheless labors from the disadvantage of requiring a slight amount of attention, it was thought worth while to devise one that would work without any attention at all. A small exhaust pump of about 16 c. cm. capacity was run by a small electric motor; with this arrangement it is necessary to place a valve in the system to prevent too great a negative pressure being developed. The arrangement which was adopted consisted in connecting the pump with a large wide-mouthed bottle, through the cork of which three tubes passed. One of these was connected with the pump, one with the chest, and the third was open above, but inside the bottle passed into a cylinder containing mercury. The depth of the mercury was over 15 cm., the tube could be drawn up so that the distance of the end from the surface of the mercury could be adjusted with ease. It is necessary for the cylinder to be at least 2 centimeters in diameter, because air bubbling through mercury agitates it so greatly that if a small cylinder be used the mercury would be thrown out of it; gauze should be tied over the top of the cylinder. The negative pressure de-

75 Ueber einen pseudo-diphtherischen Symptomkomplex bei Neugeborenen (in the newborn). A. P. Brecelj.
76 Zur Buttermilch-Ernährung und deren Indikation (buttermilk in infant feeding). H. Rensburg.
77 Ueber Milch gewinnung und Milchversorgung (milk supply and preservation). B. Sperk.
78 Action of Cooking on Albuminoids in Milk.—Wirkung des Kochens auf die Eiweissstoffe der Kuhmilch. R. Popper.
79 (No. 2.) *Local Treatment of Pressure Ulceration in Larynx.—Zur örtlichen Behandlung der Druckgeschwüre des Kehlkopfes. J. v. Bokay (Budapest).
80 Ueber den sog. Hikan (Xerosis conjunctivæ infantum ev. Keratomalacie). M. Mori (Berne).
81 Zur Behandlung der diphtherischen Stenosen. C. A. Thümer.
82 Zur Kenntnis der progressiven spinalen Muskel-Atrophie im frühen Kindesalter. G. v. Ritter.
83 *Zur Lehre von der Rachitis. F. Siegert.
84 (No. 3.) Zur Tetanie im Kindesalter (in children). C. Beck.
85 Ueber Darm-Gase bei Säuglingen mit Tympanites. R. Quest.

**79. Local Treatment of Pressure Ulceration in Larynx.**—Local applications are advocated by von Bokay in the form of a coating of gelatin and alum on a bronze tube. This prevents decubitus and promptly heals it if already established, as has been his experience in 16 cases. The bronze tube is made with a neck smaller than usual, and the medicated coating soothes and heals the lesion. This "healing tube" was inserted and left three days in place. The preceding ebonite tube had been worn for 93 to 294 hours. The patients were all under 7 years old. Secondary tracheotomy was avoided in all his cases.

**83. Rachitis and Breast Feeding.**—Siegert reviews a series of 2,152 children and states that among them rickets occurred almost exclusively in the artificially fed infants unless there was an inherited predisposition. Breast feeding is not an absolute protection against the affection, but it renders the children more resistant to its inroads.

### Zeitschrift f. klinische Medicin, Berlin.

*Last indexed page 333.*

86 (LV, Naunyn Festchrift.) *Ueber renalpalpatorische Albuminurie und ihre Bedeutung für die Diagnose von Dystopien sowie von Tumoren im Abdomen. J. Schreiber (Königsberg).
87 Zur Pathogenese des Icterus. Minkowski.
88 Zur Lehre von der Akromegalie. E. Stadelmann.
89 Struma und Katarakt. A. Vossius.
90 Zur Klinik der Cholelithiasis. von Wild.
91 *Polyglobulie und Milztumor (enlarged spleen). W. Weintraud.
92 Pseudoleukämie und Tuberculose. H. Falkenheim. One case in small boy.
93 Zur Morphologie und Biologie der Tuberkel-Bacillen. E. Levy.
94 *Fever in Syphilitic Liver Affections.—Ueber Fieber bei Syphilis der Leber. F. Klemperer.
95 *Psychisches Trauma und progressive Paralyse. H. Kriege.
96 Experimental Study of Circulation in Lungs and of Mechanical Action of Pleural Effusions.—Exp. Beiträge zur Lehre vom Lungenkreislauf und von der mech. Wirkung pleuritische Ergüsse. D. Gerhardt.
97 Disturbances in Absorption of Fat and Their Relation to Elimination of Lime, Magnesia and Ammonia.—Ueber Störungen der Fettresorption und ihre Beziehung zur Ausscheidung von Kalk, Magnesia und Ammoniak. W. Schlesinger.
98 Ueber das Verhalten der stereoisomeren Methyl-Glykoside im gesunden und diabetischen menschlichen Organismus (behavior in health and in diabetes). S. Lang.
99 *Fever in Biliary Lithiasis.—Ueber das Fieber bei der Gallensteinkrankheit. H. Ehret.
100 *Banti's Disease and Metabolism Before and After Splenectomy.—Zur Pathogenese der Bantischen Krankheit, mit bes. Berücksichtigung des Stoffumsatzes vor und nach der Splenectomie. F. Umber (Altona).
101 *Operative Behandlung der otitischen Meningitis. P. Manasse (Strasburg).
102 *Ueber das gleichzeitige Vorkommen von manifester Syphilis und Tabes (simultaneous occurrence). C. Adrian.
103 *Ueber infectiöse Labyrinth-Erkrankungen. W. Kümmel (Strasburg).
104 *Trauma und Diabetes mellitus und Glykosurie. W. Kausch.
105 Multiple Sklerose und Diabetes mellitus. U. Rose.
106 Zur Kenntnis von Secretions-Anomalien der Niere (of kidney). A. Steyrer.
107 *Zur Hygiene und Therapie der Wüste (of the desert). H. Engel (Heluan, Egypt).
108 Die Remissionen der Dementia precox. K. Pfersdorff.
109 *Ueber intravitale Beeinflussung autolytischer Vorgänge im Körper (intravital influencing of autolytic processes). Heile (Breslau).
110 Fall von Dermographismus bei einem Icterischen. L. Bollack.
111 Thermodynamische Betrachtungen über die Reactionen zwischen Colloiden und über das Wesen der colloidalen Lösungen (essence of colloidal solutions). U. Friedemann.
112 Ueber Polyposis intestinalis. O. Funkenstein.
113 Ueber Albuminurie bei Scabies. H. Hübner (Leipsic).

**86. "Renal-Palpatory" Albuminuria.**—Schreiber has been investigating for several years the conditions under which albuminuria develops from compression of the kidney. This organ reacts with albuminuria to any decided interference with its circulation, but it subsides with the removal of the cause. Compression of the upper part of the thorax and direct palpation of the kidney are able to elicit this transient albuminuria. In 42 cases of wandering kidney examined, the displacement of the kidney was considerable in 29, and all of these patients showed marked albuminuria after direct palpation of the organ. The findings were also more or less positive in all the others, with a single exception. The proportion of albumin ranged from traces to 3 per 1,000 Esbach. The larger proportions were always in elderly persons. Indirect palpation of the kidney, through the liver, sometimes gave vaguely positive findings. The albuminuria was more pronounced the better the access to the front and rear surface of part of the kidney. Palpation and compression of the pole alone are enough for the purpose. The albuminuria thus induced differs from that of nephritis by its transient character and by the absence of casts. If it persists into the next day the presence of inflammation may be surmised. This "renal palpatory" albuminuria serves to differentiate a wandering kidney from an abdominal tumor as Schreiber shows by 6 convincing examples. The appearance of the albuminuria demonstrated that the tumor was the kidney and not the spleen, or a stone-filled gall bladder or a liver tumor. Six other cases are related to prove the great differential value of the results of direct palpation of the kidney by the absence of this transient albuminuria. Admixture of blood supplements the information thus derived in some cases. Schreiber proclaims that this "renal palpatory albuminuria" will undoubtedly render exploratory incision or catheterization of the ureters superfluous in many cases.

**91. "Polyglobulia with Enlarged Spleen."**—Weintraud thinks that the cases with enlarged spleen belong in a different category from those without, and consequently that Osler was right in classing his 3 cases of "chronic cyanosis with polycythemia and enlarged spleen" as a new clinical entity. Weintraud has observed 3 similar cases, which bring the total on record to 16. Only 6 of the patients were women. All were between 27 and 53 years of age. Malaria, alcohol and syphilis seem to play no part in the etiology. The subjective disturbances can be classed as those due to disturbances in the circulation of the brain and those resulting from the enlarging of the spleen. The first symptoms dated from six to ten years before in many of the cases. One of his patients had edema of the legs, with phlebitic processes and development of gout later, with general dropsy to which he succumbed. Years before the first symptoms of gout appeared, an excess of uric acid had been noted in the blood. The 2 other patients are still alive, and one seems to be benefited by venesection every six months, although the composition of the blood does not seem to be altered by it. His relief after a severe hemorrhage from the stomach was unmistakable. The third patient was apparently benefited for a time by a course of Marienbad waters, vegetable diet and restriction of fluids, but serious complications on the part of the heart supervened, calling for digitalis and diuretics. The spleen in this case has subsided to nearly normal size. Weintraud analyzes also the cases on record in which nearly the same clinical picture was presented, but without enlargement of the spleen, and theorizes to explain its etiology. It can not be ascribed to increased blood pressure, as this was approximately normal in his cases.

**94. Fever in Syphilitic Affections of Liver.**—Klemperer had occasion to observe 2 cases in the last few months in which the most prominent symptom was a protracted fever of a pronounced remittent and sometimes intermittent type, with chills. No signs of any lesions could be discovered, except a slight enlargement and tenderness of the liver, with traces of icterus. Both patients were promptly and permanently cured by tentative mercurial-iodid treatment. He reviews the literature on febrile lues of the viscera, and advocates specific treatment in all conditions of obscure origin in which the predominant symptom is a persisting hectic fever. The trouble may be a syphilitic affection of the liver, lungs or other organs.

**95. Psychic Trauma and Progressive Paralysis.**—Kriege describes a case and summarizes 2 from the literature in which a severe fright, an attack by bandits or an explosion, was fol-